97625

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

SEARCH REQUEST FORM

Requestor's Name: Irene Marx

Serial Number: 10/059774

Date: 6/26/03 Phone: 308-2922 Art Unit: 1651

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s).

Please search inventors

Please search process of making enantiopure

1,3 dioxolan-4-one } as incl. 1
1,3 thioxolan-5-one }

- Bioconversion of compounds of cl. 2

- with enzyme
- with lipase or esterase

STAFF USE ONLY

Date completed: 6/27
Searcher: Hanley
Terminal time: 52
Elapsed time: 60
CPU time:
Total time:
Number of Searches:
Number of Databases:

Search Site
- ____ STIC
- ____ CM-1
- ____ Pre-S

Type f Search
- ____ N.A. Sequence
- ____ A.A. Sequence
- ____ Structure
- ____ Bibliographic

Vendors
- ____ IG
- $536 STN
- ____ Dialog
- ____ APS
- ____ Geninfo
- ____ SDC
- ____ DARC/Questel
- ____ Other

PTO-1590 (9-90)

Inventor search

MARX 10/059,774

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=> d que l12
L1            77 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POPP A?/AU
L2            30 SEA FILE=HCAPLUS ABB=ON  PLU=ON  STOHRER J?/AU
L3           780 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PETERSEN H?/AU
L4             3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GILCH A?/AU
L5             4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("ROCKINGER MECHLEM JODOCA"/AU
                   OR "ROCKINGHAM C J"/AU)
L6           883 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4 OR L5)
L7             1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6 AND ?DIOXOLAN?
L8             1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6 AND ?OXATHIOLAN?
L10            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8)
L11           23 SEA FILE=REGISTRY ABB=ON  PLU=ON  (107053-35-0/BI OR 146528-24-
                   7/BI OR 1634-04-4/BI OR 166116-95-6/BI OR 4158-81-0/BI OR
                   4385-46-0/BI OR 444730-15-8/BI OR 444730-16-9/BI OR 444730-17-0
                   /BI OR 444730-18-1/BI OR 444730-19-2/BI OR 444730-20-5/BI OR
                   444730-21-6/BI OR 444730-22-7/BI OR 444730-23-8/BI OR 444730-24
                   -9/BI OR 444730-25-0/BI OR 64-17-5/BI OR 67-56-1/BI OR
                   75-05-8/BI OR 7732-18-5/BI OR 9001-62-1/BI OR 9016-18-6/BI)
L12            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L11 AND L10
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1 cite

=> d ibib abs hitstr ind

L12 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:591755 HCAPLUS
DOCUMENT NUMBER: 137:139499
TITLE: Method for the enzymatic preparation of enantiomerically pure derivatives of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one
INVENTOR(S): **Popp, Alfred; Stohrer, Juergen; Petersen, Hermann; Gilch, Andrea; Rockinger-Mechlem, Jodoca**
PATENT ASSIGNEE(S): Consortium Fuer Elektrochemische Industrie Gmbh, Germany
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1229127	A1	20020807	EP 2002-1124	20020124
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10104231	A1	20020808	DE 2001-10104231	20010131
JP 2002281997	A2	20021002	JP 2002-22091	20020130

PRIORITY APPLN. INFO.: DE 2001-10104231 A 20010131
OTHER SOURCE(S): CASREACT 137:139499; MARPAT 137:139499

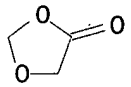
AB A process is provided for the prodn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by an enzyme mediated kinetic resoln. of a racemate. When a racemic 1,3-**dioxolan**-4-one or 1,3-**oxathiolan**-5-one deriv. is mixed with a lipase or esterase in the presence of an oxygen contg. nucleophile, the **dioxolane/ oxathiolane** ring of one enantiomer is hydrolyzed at faster rate than the other enantiomer. Thus, 2-methylpropanoic acid(4-oxo-1,3-**dioxolan**-2-yl)methyl ester is mixed with Novozym 435 (a com. lipase) and methanol, (+)-(R)-2-Methylpropanoic acid(4-oxo-1,3-**dioxolan**-2-yl)methyl ester is produced with an enantiomeric excess > 98%.

IT **1634-04-4**, MTBE
RL: BCP (Biochemical process); BIOL (Biological study); PROC (Process)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)
RN 1634-04-4 HCAPLUS
CN Propane, 2-methoxy-2-methyl- (9CI) (CA INDEX NAME)

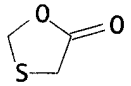
t-Bu—O—Me

IT **4158-81-0DP**, 1,3-**Dioxolan**-4-one, and derivs. of
4385-46-0DP, 1,3-**Oxathiolan**-5-one, and derivs. of
RL: BCP (Biochemical process); BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); PUR (Purification or recovery); RCT (Reactant); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**

-4-one and 1,3-**oxathi lan**-5-one by enzymic kinetic resoln.)
RN 4158-81-0 HCAPLUS
CN 1,3-Dioxolan-4-one (8CI, 9CI) (CA INDEX NAME)



RN 4385-46-0 HCAPLUS
CN 1,3-Oxathiolan-5-one (8CI, 9CI) (CA INDEX NAME)

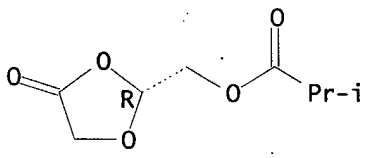


IT **9001-62-1**, Lipase **9016-18-6**, Esterase, carboxyl
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)
RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9016-18-6 HCAPLUS
CN Esterase, carboxyl (8CI, 9CI) (CA INDEX NAME)

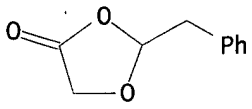
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **444730-15-8P 444730-17-0P 444730-18-1P**
444730-19-2P 444730-21-6P 444730-23-8P
444730-25-0P
RL: BCP (Biochemical process); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)
RN 444730-15-8 HCAPLUS
CN Propanoic acid, 2-methyl-, [(2R)-4-oxo-1,3-dioxolan-2-yl]methyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



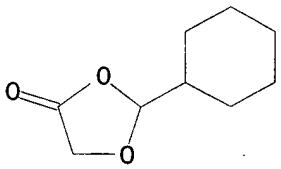
RN 444730-17-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(phenylmethyl)-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



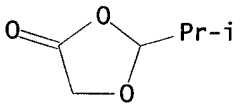
RN 444730-18-1 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-cyclohexyl-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



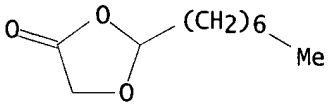
RN 444730-19-2 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1-methylethyl)-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



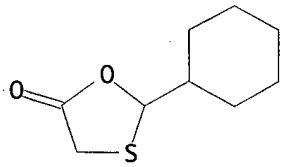
RN 444730-21-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-heptyl-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



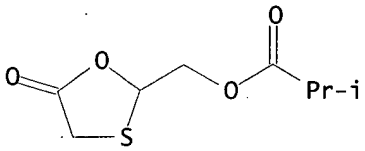
RN 444730-23-8 HCAPLUS
CN 1,3-Oxathiolan-5-one, 2-cyclohexyl-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



RN 444730-25-0 HCAPLUS
CN Propanoic acid, 2-methyl-, (5-oxo-1,3-oxathiolan-2-yl)methyl ester, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



IT **64-17-5**, Ethanol, reactions **67-56-1**, Methanol, reactions
75-05-8, Acetonitrile, reactions **7732-18-5**, Water,
reactions **107053-35-0 146528-24-7 166116-95-6**
444730-16-9 444730-20-5 444730-22-7
444730-24-9
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study);
PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**
-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

RN 64-17-5 HCAPLUS
CN Ethanol (9CI) (CA INDEX NAME)

H_3C-CH_2-OH

RN 67-56-1 HCAPLUS
CN Methanol (8CI, 9CI) (CA INDEX NAME)

H_3C-OH

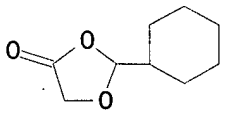
RN 75-05-8 HCAPLUS
CN Acetonitrile (8CI, 9CI) (CA INDEX NAME)

$H_3C-C\equiv N$

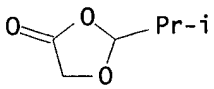
RN 7732-18-5 HCAPLUS
CN Water (8CI, 9CI) (CA INDEX NAME)

H_2O

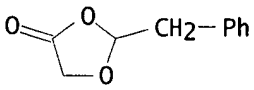
RN 107053-35-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-cyclohexyl- (9CI) (CA INDEX NAME)



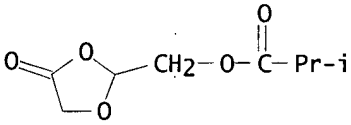
RN 146528-24-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1-methylethyl)- (9CI) (CA INDEX NAME)



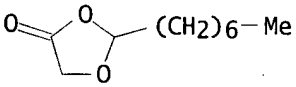
RN 166116-95-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(phenylmethyl)- (9CI) (CA INDEX NAME)



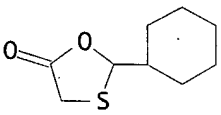
RN 444730-16-9 HCAPLUS
CN Propanoic acid, 2-methyl-, (4-oxo-1,3-dioxolan-2-yl)methyl ester (9CI) (CA INDEX NAME)



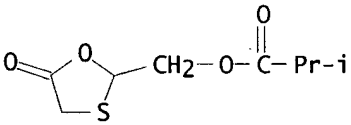
RN 444730-20-5 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-heptyl- (9CI) (CA INDEX NAME)



RN 444730-22-7 HCAPLUS
CN 1,3-Oxathiolan-5-one, 2-cyclohexyl- (9CI) (CA INDEX NAME)



RN 444730-24-9 HCAPLUS
CN Propanoic acid, 2-methyl-, (5-oxo-1,3-oxathiolan-2-yl)methyl ester (9CI) (CA INDEX NAME)



IC ICM C12P041-00
CC 16-5 (Fermentation and Bioindustrial Chemistry)

Section cross-reference(s): 28

ST enzymic kinetic resoln **dioxolane oxathiolane** deriv

IT Columns and Towers
(bioreactor; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Bioreactors
(column; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Enzymes, uses
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(com.; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Resolution (separation)
(enzymic, kinetic; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Hydrolysis
(enzymic, stereoselective; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Hydrocarbons, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(halo; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Enzymes, uses
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(immobilized; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Ring opening
(nucleophilic; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Nucleophiles
(oxygen contg.; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Distillation
Extraction
Temperature
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Ethers, preparation
RL: BCP (Biochemical process); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Alcohols, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Aromatic hydrocarbons, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Esters, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Hydrocarbons, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Alcohols, reactions
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(secondary; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT Bioreactors
(stirred-tank; prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT **1634-04-4**, MTBE
RL: BCP (Biochemical process); BIOL (Biological study); PROC (Process)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT **4158-81-0DP**, 1,3-**Dioxolan**-4-one, and derivs. of
4385-46-0DP, 1,3-**Oxathiolan**-5-one, and derivs. of
RL: BCP (Biochemical process); BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); PUR (Purification or recovery); RCT (Reactant); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT **9001-62-1**, Lipase **9016-18-6**, Esterase, carboxyl
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT **444730-15-8P 444730-17-0P 444730-18-1P**
444730-19-2P 444730-21-6P 444730-23-8P
444730-25-0P
RL: BCP (Biochemical process); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

IT **64-17-5**, Ethanol, reactions **67-56-1**, Methanol, reactions
75-05-8, Acetonitrile, reactions **7732-18-5**, Water, reactions **107053-35-0 146528-24-7 166116-95-6**
444730-16-9 444730-20-5 444730-22-7
444730-24-9
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(prepn. of enantiomerically pure derivs. of 1,3-**dioxolan**-4-one and 1,3-**oxathiolan**-5-one by enzymic kinetic resoln.)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Inventor search

MARX 10/059,774

```
=> d que l16
L1           77 SEA FILE=HCAPLUS ABB=ON  PLU=ON  POPP A?/AU
L2           30 SEA FILE=HCAPLUS ABB=ON  PLU=ON  STOHRER J?/AU
L3          780 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PETERSEN H?/AU
L4            3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GILCH A?/AU
L5            4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("ROCKINGER MECHLEM JODOCA"/AU
                  OR "ROCKINGHAM C J"/AU)
L6          883 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4 OR L5)
L7            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6 AND ?DIOXOLAN?
L8            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6 AND ?OXATHIOLAN?
L9            9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6 AND ENANTIO?
L10           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8)
L13           8 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 NOT L10
L14           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND (ENZYM? OR LIPASE OR
                  ESTERASE)
L15          19 SEA FILE=REGISTRY ABB=ON  PLU=ON  (1634-04-4/BI OR 215316-59-9/
                  BI OR 385812-12-4/BI OR 503322-41-6/BI OR 503322-42-7/BI OR
                  503322-43-8/BI OR 503322-44-9/BI OR 503322-45-0/BI OR 503322-46
                  -1/BI OR 503322-47-2/BI OR 503322-48-3/BI OR 503322-49-4/BI OR
                  503322-50-7/BI OR 503322-51-8/BI OR 503322-52-9/BI OR 503441-37
                  -0/BI OR 9001-62-1/BI OR 9016-18-6/BI OR 94064-20-7/BI)
L16           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 AND L15
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1 citation

=> d ibib abs hitstr ind

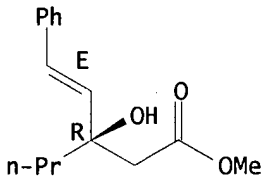
L16 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2003:259778 HCAPLUS
DOCUMENT NUMBER: 138:270415
TITLE: **Lipase** catalyzed kinetic resolution of .beta.-hydroxy carboxylic acid esters
INVENTOR(S): **Popp, Alfred; Petersen, Hermann; Stohrer, Juergen; Rockinger-Mechlem, Jodoca; Gilch, Andrea**
PATENT ASSIGNEE(S): Consortium Fuer Elektrochemische Industrie G.m.b.H., Germany
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1298218	A1	20030402	EP 2002-21271	20020919
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
DE 10147653	A1	20030424	DE 2001-10147653	20010927
US 2003109029	A1	20030612	US 2002-255776	20020926

PRIORITY APPLN. INFO.: DE 2001-10147653 A 20010927
OTHER SOURCE(S): CASREACT 138:270415; MARPAT 138:270415
AB A process is provided for the prodn. of **enantiomerically** pure .beta.-hydroxycarboxylic acids by **enzymic** kinetic resoln. of a racemic mixt. Thus, racemic Me 3-hydroxy-5-phenyl-3-propyl-(E)-4-pentenoate was kinetically resolved at pH 8.0 with Novozyme.RTM. 525F to yield the R **enantiomer**. The aq. reaction mixt. was extd. with Me tert-Bu ether (MBTE), filtered through sodium sulfate and concd. under vacuum. The residue contained (R)-(+)-Me 3-hydroxy-5-phenyl-3-propyl-(E)-4-pentenoate with an **enantiomeric** excess of 72%. The remaining aq. phase was acidified to pH 2.0 and extd. with MBTE and the org. phase was also filtered through sodium sulfate and concd. under vacuum. The residue from this extn. yielded (S)-(-)-3-hydroxy-5-phenyl-3-propyl-(E)-4-pentenoic acid with an **enantiomeric** excess of 96%.
IT **9001-62-1, Lipase**
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(Novozyme 525F; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

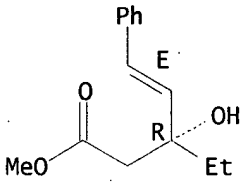
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **503322-42-7P 503322-45-0P 503322-47-2P 503322-49-4P 503322-52-9P**
RL: BCP (Biochemical process); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
RN 503322-42-7 HCAPLUS
CN Hexanoic acid, 3-hydroxy-3-[(1E)-2-phenylethenyl]-, methyl ester, (3R)-(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).
Double bond geometry as shown.



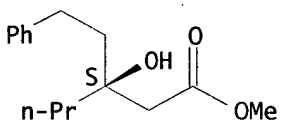
RN 503322-45-0 HCAPLUS
CN 4-Pentenoic acid, 3-ethyl-3-hydroxy-5-phenyl-, methyl ester, (3R,4E)-
(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).
Double bond geometry as shown.



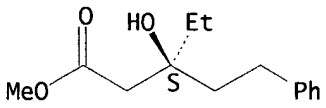
RN 503322-47-2 HCAPLUS
CN Benzenepentanoic acid, .beta.-hydroxy-.beta.-propyl-, methyl ester,
(.beta.S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



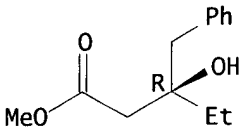
RN 503322-49-4 HCAPLUS
CN Benzenepentanoic acid, .beta.-ethyl-.beta.-hydroxy-, methyl ester,
(.beta.S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 503322-52-9 HCAPLUS
CN Benzenebutanoic acid, .beta.-ethyl-.beta.-hydroxy-, methyl ester,
(.beta.R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

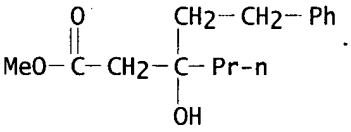


IT **9016-18-6**, Carboxy **esterase 385812-12-4**
503322-41-6 503322-44-9 503322-48-3
503322-51-8
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study);
PROC (Process); RACT (Reactant or reagent)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)

RN 9016-18-6 HCAPLUS
CN Esterase, carboxyl (8CI, 9CI) (CA INDEX NAME)

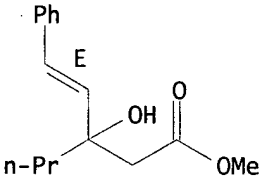
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 385812-12-4 HCAPLUS
CN Benzenepentanoic acid, .beta.-hydroxy-.beta.-propyl-, methyl ester (9CI) (CA INDEX NAME)



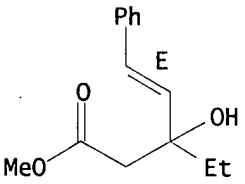
RN 503322-41-6 HCAPLUS
CN Hexanoic acid, 3-hydroxy-3-[(1E)-2-phenylethenyl]-, methyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



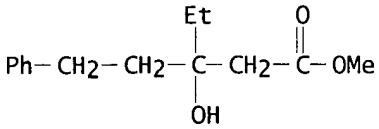
RN 503322-44-9 HCAPLUS
CN 4-Pentenoic acid, 3-ethyl-3-hydroxy-5-phenyl-, methyl ester, (4E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

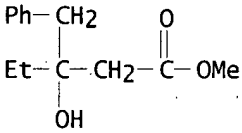


RN 503322-48-3 HCAPLUS

CN Benzenepentanoic acid, .beta.-ethyl-.beta.-hydroxy-, methyl ester (9CI) (CA INDEX NAME)

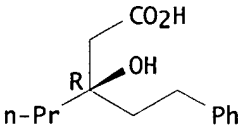


RN 503322-51-8 HCAPLUS
CN Benzenebutanoic acid, .beta.-ethyl-.beta.-hydroxy-, methyl ester (9CI) (CA INDEX NAME)



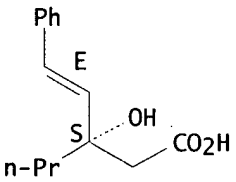
IT **215316-59-9P 503322-43-8P 503322-46-1P**
503322-50-7P 503441-37-0P
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
RN 215316-59-9 HCAPLUS
CN Benzenepentanoic acid, .beta.-hydroxy-.beta.-propyl-, (.beta.R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



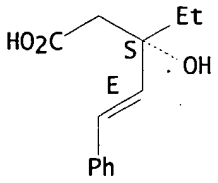
RN 503322-43-8 HCAPLUS
CN Hexanoic acid, 3-hydroxy-3-[(1E)-2-phenylethenyl]-, (3S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).
Double bond geometry as shown.



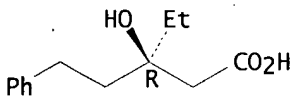
RN 503322-46-1 HCAPLUS
CN 4-Pentenoic acid, 3-ethyl-3-hydroxy-5-phenyl-, (3S,4E)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).
Double bond geometry as shown.



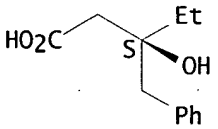
RN 503322-50-7 HCAPLUS
CN Benzenepentanoic acid, .beta.-ethyl-.beta.-hydroxy-, (.beta.R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 503441-37-0 HCAPLUS
CN Benzenebutanoic acid, .beta.-ethyl-.beta.-hydroxy-, (.beta.S)- (9CI) (CA INDEX NAME)

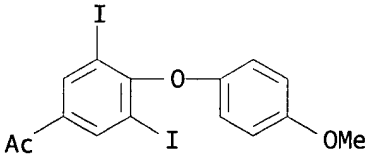
Absolute stereochemistry.



IT **1634-04-4**, Methyl tert-butyl ether **94064-20-7**, DIPe
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
RN 1634-04-4 HCAPLUS
CN Propane, 2-methoxy-2-methyl- (9CI) (CA INDEX NAME)

t-Bu—O—Me

RN 94064-20-7 HCAPLUS
CN Ethanone, 1-[3,5-diiodo-4-(4-methoxyphenoxy)phenyl]- (9CI) (CA INDEX NAME)



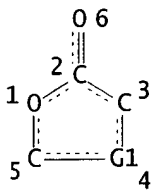
IC ICM C12P041-00
CC 16-5 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 7
ST **lipase** kinetic resoln beta hydroxy carboxylate
IT Resolution (separation)
(**enzymic**, kinetic; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT Hydrolysis
(**enzymic**, stereoselective; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT Carboxylic acids, preparation
RL: BCP (Biochemical process); PUR (Purification or recovery); RCT (Reactant); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(esters, .beta.-hydroxy; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT Carboxylic acids, preparation
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(hydroxy; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT Distillation
Esterification
Extraction
Saponification
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT Temperature
(range for the reaction, 20-50 .degree.C; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT **9001-62-1**, **Lipase**
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(Novozyme 525F; **lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT **503322-42-7P 503322-45-0P 503322-47-2P**
503322-49-4P 503322-52-9P
RL: BCP (Biochemical process); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT **9016-18-6**, Carboxy **esterase 385812-12-4**
503322-41-6 503322-44-9 503322-48-3
503322-51-8
RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT **215316-59-9P 503322-43-8P 503322-46-1P**
503322-50-7P 503441-37-0P
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)
IT **1634-04-4**, Methyl tert-butyl ether **94064-20-7**, DIPe
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**lipase** catalyzed kinetic resoln. of .beta.-hydroxy carboxylic acid esters)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Registry & HCAPLUS Search

MARX 10/059,774

=> D QUE L22 STAT
L19 STR ← STR for all searches in HCAPLUS



← ring can be fused

VAR G1=O/7
NODE ATTRIBUTES:
CONNECT IS E2 RC AT 7
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE
L22 3939 SEA FILE=REGISTRY SSS FUL L19 3,939 compounds

100.0% PROCESSED 13822 ITERATIONS 3939 ANSWERS
SEARCH TIME: 00.00.01

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L23             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  LIPASE/CN
L24             2 SEA FILE=REGISTRY ABB=ON  PLU=ON  ESTERASE/CN
L25          1396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L22
L26         33389 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 OR LIPASE/OBI
L27         25940 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 OR ESTERASE/OBI
L28            12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND (L26 OR L27)
L31            24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND ENZYM?/OBI
L32         18115 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "RESOLUTION (SEPARATION)"+PFT,
                  NT/CT
L33             4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L28 OR L31) AND L32

=> D QUE NOS L35
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L23             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  LIPASE/CN
L24             2 SEA FILE=REGISTRY ABB=ON  PLU=ON  ESTERASE/CN
L25          1396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L22
L26         33389 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 OR LIPASE/OBI
L27         25940 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 OR ESTERASE/OBI
L28            12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND (L26 OR L27)
L31            24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND ENZYM?/OBI
L34        103924 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (RESOLUTION OR RESOLV?)/OBI
L35             7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND (L28 OR L31)

=> D QUE NOS L36
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L22          3939 SEA FILE=REGISTRY SSS FUL L19
L23             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  LIPASE/CN
L24             2 SEA FILE=REGISTRY ABB=ON  PLU=ON  ESTERASE/CN
L25          1396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L22
L26         33389 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 OR LIPASE/OBI
L27         25940 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 OR ESTERASE/OBI
L28            12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND (L26 OR L27)
L31            24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND ENZYM?/OBI
L36             3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L28 OR L31) AND ENANTIO?/OBI

=> S L33 OR L35 OR L36
L45             8 L33 OR L35 OR L36
```

← STR on previous page

3,939 compounds

L22 cites for compounds.

4 cites

7 cites

3 cites

8 cites total

CT = controlled terminology

PFT = old, new or "used for" terms

NT = narrower terms

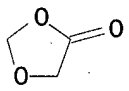
OBI = all fields except the abstract

=> d ibib abs hitstr 1-8 L45

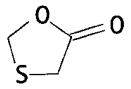
L45 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:591755 HCAPLUS
DOCUMENT NUMBER: 137:139499
TITLE: Method for the **enzymatic** preparation of **enantiomerically** pure derivatives of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one
INVENTOR(S): Popp, Alfred; Stohrer, Juergen; Petersen, Hermann; Gilch, Andrea; Rockinger-Mechlem, Jodoca
PATENT ASSIGNEE(S): Consortium Fuer Elektrochemische Industrie Gmbh, Germany
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1229127	A1	20020807	EP 2002-1124	20020124
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10104231	A1	20020808	DE 2001-10104231	20010131
JP 2002281997	A2	20021002	JP 2002-22091	20020130

PRIORITY APPLN. INFO.: DE 2001-10104231 A 20010131
OTHER SOURCE(S): CASREACT 137:139499; MARPAT 137:139499
AB A process is provided for the prodn. of enantiomerically pure derivs. of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one by an enzyme mediated kinetic resoln. of a racemate. When a racemic 1,3-dioxolan-4-one or 1,3-oxathiolan-5-one deriv. is mixed with a lipase or esterase in the presence of an oxygen contg. nucleophile, the dioxolane/ oxathiolane ring of one enantiomer is hydrolyzed at faster rate than the other enantiomer. Thus, 2-methylpropanoic acid(4-oxo-1,3-dioxolan-2-yl)methyl ester is mixed with Novozym 435 (a com. lipase) and methanol, (+)-(R)-2-Methylpropanoic acid(4-oxo-1,3-dioxolan-2-yl)methyl ester is produced with an enantiomeric excess > 98%.
IT **4158-81-0DP**, 1,3-Dioxolan-4-one, and derivs. of
4385-46-0DP, 1,3-Oxathiolan-5-one, and derivs. of
RL: BCP (Biochemical process); BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); PUR (Purification or recovery); RCT (Reactant); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(prepn. of **enantiomerically** pure derivs. of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one by **enzymic** kinetic **resoln.**)
RN 4158-81-0 HCAPLUS
CN 1,3-Dioxolan-4-one (8CI, 9CI) (CA INDEX NAME)



RN 4385-46-0 HCAPLUS
CN 1,3-Oxathiolan-5-one (8CI, 9CI) (CA INDEX NAME)

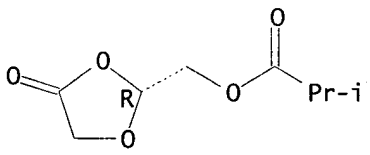


IT **9001-62-1, Lipase 9016-18-6, Esterase**
, carboxyl
RL: BCP (Biochemical process); CAT (Catalyst use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of **enantiomerically** pure derivs. of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one by **enzymic** kinetic **resoln.**)
RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9016-18-6 HCAPLUS
CN Esterase, carboxyl (8CI, 9CI) (CA INDEX NAME)

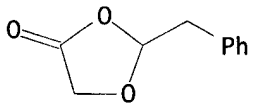
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **444730-15-8P 444730-17-0P 444730-18-1P**
444730-19-2P 444730-21-6P 444730-23-8P
444730-25-0P
RL: BCP (Biochemical process); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(prepn. of **enantiomerically** pure derivs. of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one by **enzymic** kinetic **resoln.**)
RN 444730-15-8 HCAPLUS
CN Propanoic acid, 2-methyl-, [(2R)-4-oxo-1,3-dioxolan-2-yl]methyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



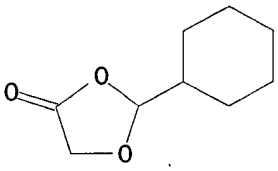
RN 444730-17-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(phenylmethyl)-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



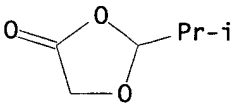
RN 444730-18-1 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-cyclohexyl-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



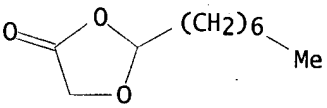
RN 444730-19-2 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1-methylethyl)-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



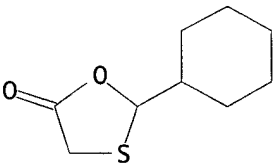
RN 444730-21-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-heptyl-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



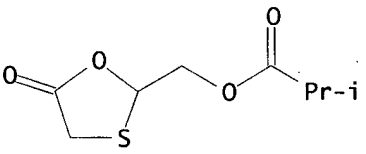
RN 444730-23-8 HCAPLUS
CN 1,3-Oxathiolan-5-one, 2-cyclohexyl-, (+)- (9CI) (CA INDEX NAME)

Rotation (+).



RN 444730-25-0 HCAPLUS
CN Propanoic acid, 2-methyl-, (5-oxo-1,3-oxathiolan-2-yl)methyl ester, (+)- (9CI) (CA INDEX NAME)

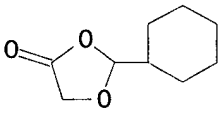
Rotation (+).



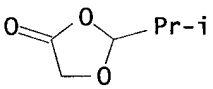
IT **107053-35-0 146528-24-7 166116-95-6 444730-16-9 444730-20-5 444730-22-7 444730-24-9**

RL: BCP (Biochemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(prepn. of **enantiomerically** pure derivs. of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one by **enzymic** kinetic **resoln.**)

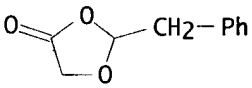
RN 107053-35-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-cyclohexyl- (9CI) (CA INDEX NAME)



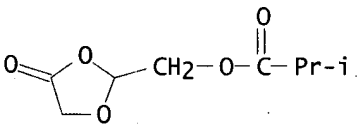
RN 146528-24-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1-methylethyl)- (9CI) (CA INDEX NAME)



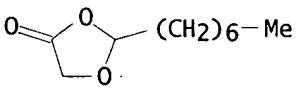
RN 166116-95-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(phenylmethyl)- (9CI) (CA INDEX NAME)



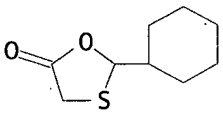
RN 444730-16-9 HCAPLUS
CN Propanoic acid, 2-methyl-, (4-oxo-1,3-dioxolan-2-yl)methyl ester (9CI) (CA INDEX NAME)



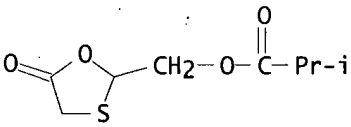
RN 444730-20-5 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-heptyl- (9CI) (CA INDEX NAME)



RN 444730-22-7 HCAPLUS
CN 1,3-Oxathiolan-5-one, 2-cyclohexyl- (9CI) (CA INDEX NAME)



RN 444730-24-9 HCAPLUS
CN Propanoic acid, 2-methyl-, (5-oxo-1,3-oxathiolan-2-yl)methyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:51415 HCAPLUS
DOCUMENT NUMBER: 136:118468
TITLE: Preparation of 2-aryl-2-hydroxyacetic acid ester derivatives as muscarinic M3 receptor antagonists
INVENTOR(S): Ogino, Yoshio; Kurihara, Hideki; Matsuda, Kenji; Numazawa, Tomoshige; Otake, Norikazu; Noguchi, Kazuhito
PATENT ASSIGNEE(S): Banyu Pharmaceutical Co., Ltd., Japan
SOURCE: PCT Int. Appl., 138 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002004402	A1	20020117	WO 2001-JP5987	20010710
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001071027	A5	20020121	AU 2001-71027	20010710
EP 1302458	A1	20030416	EP 2001-949925	20010710
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PRIORITY APPLN. INFO.: JP 2000-210591 A 20000711
WO 2001-JP5987 W 20010710
OTHER SOURCE(S): MARPAT 136:118468
AB Compds. of the general formula ArC(OH)(R1)CO2A [wherein A is a group of the general formula -B1-N+R2R3R4.X- or -B2-NR5CR6:NR7; Ar is aryl or heteroaryl, any of which may be substituted; B1 and B2 are each an aliph.

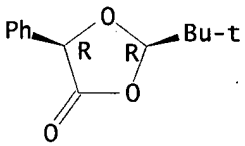
hydrocarbon group; R1 is fluorinated cycloalkyl; R2, R3 and R4 are each lower alkyl, or a single bond or alkylene, any of which is bonded to B1, or alternatively R2 and R3 may be united to form alkylene; R5 and R7 are each hydrogen, lower alkyl, or a single bond or alkylene, any of which is bonded to B2; R6 is hydrogen, lower alkyl, or N(R8)R9; R8 and R9 are independently hydrogen or lower alkyl; and X- is an anion] are prepd. Thses compds. exhibit selective muscarinic M3 receptor antagonism with little side effects and are suitable for administration by inhalation and useful as therapeutic agents for respiratory system diseases including chronic obstructive pulmonary diseases, chronic bronchitis, asthma, chronic airway obstruction, pulmonary fibrosis, pulmonary emphysema, or rhinitis. Thus, reductive methylation of piperidin-4-yl (2R)-((1R)-3,3-difluoropentyl)-2-hydroxy-2-phenylethanoate by formaldehyde and sodium cyanoborohydride in the presence of ZnCl2 in MeOH at room temp. for 30 min gave 1-methylpiperidin-4-yl (2R)-((1R)-3,3-difluoropentyl)-2-hydroxy-2-phenylethanoate which was quaternized by Me bromide in MeCN at room temp. for 15 h to give 4-[[(2R)-2-((1R)-3,3-difluorocyclopentyl)-2-hydroxy-2-phenylethanoyl]oxy]-1,1-dimethylpiperidinium bromide (I). In a muscarinic receptor M2 and M3 antagonism assay, 4-(((2R)-2-((1R)-3,3-difluorocyclopentyl)-2-hydroxy-2-phenylethanoyl)oxy)-1,1-dimethylpiperidinium bromide in vitro exhibited KB of 9.6 nM for inhibiting the carbachol-induced redn. in heart beat in rat right atrium (muscarinic receptor M2 receptor) and that of 0.004 nM for inhibiting the carbachol-induced contraction of trachea (muscarinic receptor M3 receptor) with M2/M3 receptor ratio of 218. An ampule or a powder inhalation formulation contg. I were described.

IT **9001-62-1**, **Lipase** AK
RL: CAT (Catalyst use); USES (Uses)
(**enzymic resoln.** of 2-(2,4-difluorophenyl)-2-hydroxyacetic acid; prepn. of arylhydroxyacetic acid ester derivs. as muscarinic M3 receptor antagonists)
RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **116907-30-3**, (2R,5R)-2-tert-Butyl-5-phenyl-1,3-dioxolan-4-one
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of arylhydroxyacetic acid ester derivs. as muscarinic M3 receptor antagonists for therapeutic agents)
RN 116907-30-3 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

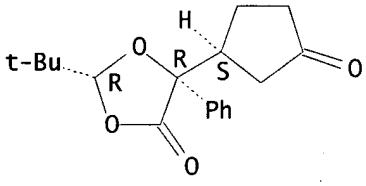


IT **203321-54-4P**, (2R,5R)-2-tert-Butyl-5-((1S)-3-oxocyclopentyl)-5-phenyl-1,3-dioxolan-4-one **203321-55-5P** **203321-57-7P** **389889-38-7P**, (2R,5R)-2-tert-Butyl-5-(4-chlorophenyl)-1,3-dioxolan-4-one **389889-46-7P**, (2R,5R)-2-tert-Butyl-5-((1R)-3-hydroxycyclopentyl)-5-phenyl-1,3-dioxolan-4-one **389889-48-9P**, (4R)-4-((2R,4R)-2-tert-Butyl-5-oxo-4-phenyl-1,3-dioxolan-4-yl)-1-cyclopentenyl acetate **389889-49-0P**, (3R)-3-((2R,4R)-2-tert-Butyl-5-oxo-4-phenyl-1,3-dioxolan-4-yl)-1-cyclopentenyl acetate

389889-50-3P, (2R,5R)-2-tert-Butyl-5-((1R,3R)-3-hydroxy-4-oxocyclopentyl)-5-phenyl-1,3-dioxolan-4-one **389889-51-4P**, (1R,4R)-4-((2R,4R)-2-tert-Butyl-5-oxo-4-phenyl-1,3-dioxolan-4-yl)-2-oxocyclopentyl acetate
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of arylhydroxyacetic acid ester derivs. as muscarinic M3 receptor antagonists for therapeutic agents)

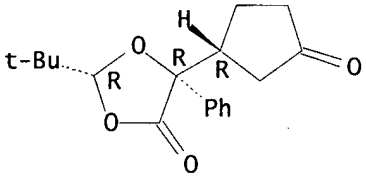
RN 203321-54-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-[(1S)-3-oxocyclopentyl]-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



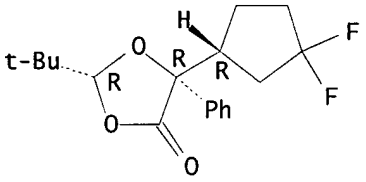
RN 203321-55-5 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-[(1R)-3-oxocyclopentyl]-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



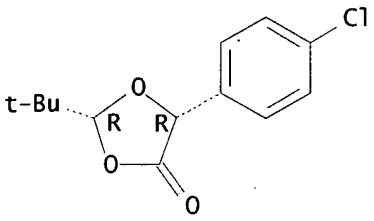
RN 203321-57-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(1R)-3,3-difluorocyclopentyl]-2-(1,1-dimethylethyl)-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



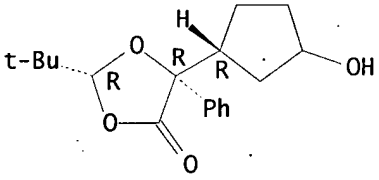
RN 389889-38-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-chlorophenyl)-2-(1,1-dimethylethyl)-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



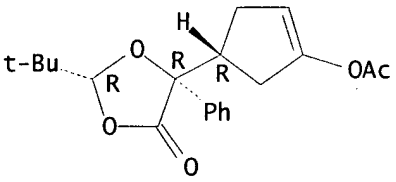
RN 389889-46-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-[(1R)-3-hydroxycyclopentyl]-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



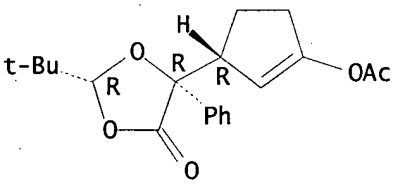
RN 389889-48-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(1R)-3-(acetyloxy)-3-cyclopenten-1-yl]-2-(1,1-dimethylethyl)-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



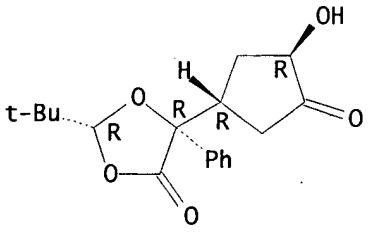
RN 389889-49-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(1R)-3-(acetyloxy)-2-cyclopenten-1-yl]-2-(1,1-dimethylethyl)-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



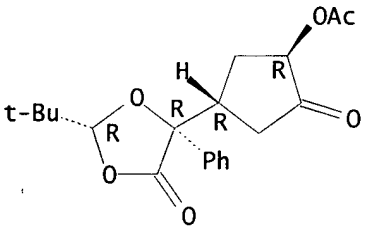
RN 389889-50-3 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-[(1R,3R)-3-hydroxy-4-oxocyclopentyl]-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



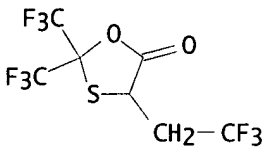
RN 389889-51-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(1R,3R)-3-(acetyloxy)-4-oxocyclopentyl]-2-(1,1-dimethylethyl)-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



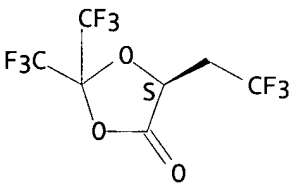
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:442484 HCAPLUS
DOCUMENT NUMBER: 133:222319
TITLE: Synthesis of (R)-4,4,4-trifluoro-2-mercaptobutyric acid
AUTHOR(S): Schedel, H.; Quaedflieg, P. J. L. M.; Broxterman, Q. B.; Bisson, W.; Duchateau, A. L. L.; Maes, I. C. H.; Herzschuh, R.; Burger, K.
CORPORATE SOURCE: Johannisallee 29, Institut fur Organische Chemie, Universitat Leipzig, Leipzig, 04103, Germany
SOURCE: Tetrahedron: Asymmetry (2000), 11(10), 2125-2131
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 133:222319
AB Syntheses of (R)-4,4,4-trifluoro-2-mercaptobutyric acid from (S)-malic acid via a Mitsunobu reaction and from (rac)-thiomalic acid on enzymic resoln., using Pseudomonas cepacia (Amano lipase PS), are described. A new method for direct detn. of ees for (R)- and (S)-4,4,4-trifluoro-2-mercaptobutyric acid derivs. by HPLC on a polysaccharide phase is disclosed.
IT **291772-68-4**
RL: RCT (Reactant); RACT (Reactant or reagent)
(alcoholysis of)
RN 291772-68-4 HCAPLUS
CN 1,3-Oxathiolan-5-one, 4-(2,2,2-trifluoroethyl)-2,2-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



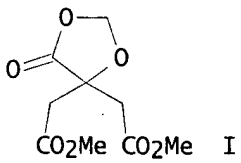
IT **291772-62-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(methanolysis of)
RN 291772-62-8 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(2,2,2-trifluoroethyl)-2,2-bis(trifluoromethyl)-, (5S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:83103 HCAPLUS
DOCUMENT NUMBER: 130:237395
TITLE: Regio- and **enantioselectivity** of the **enzyme**-catalyzed hydrolysis of citric acid derivatives
AUTHOR(S): Chenevert, Robert; Ngatcha, Beatrice Tchedam; Rose, Yannick Stephane; Goupil, Daniel
CORPORATE SOURCE: Departement de chimie, Faculte des sciences et de genie, Universite Laval, QC, G1K 7P4, Can.
SOURCE: Tetrahedron: Asymmetry (1998), 9(24), 4325-4329
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 130:237395
GI



I

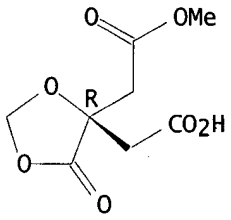
AB The hydrolysis of tri-Et citrate in the presence of three serine proteases (chymotrypsin, subtilisin BPN', subtilisin carlsberg) is highly regioselective and gives the sym. diester. Several lipases and proteases

have the complementary regioselectivity and give the chiral diester. Pig liver esterase, Aspergillus niger lipase and Candida antarctica lipase give the chiral (R)-diester with good regio- and enantioselectivity. The stereoselective hydrolysis of the meso citric deriv. I in the presence of Candida antarctica lipase gives the corresponding (R)-monoester.

IT **199341-35-0P 221303-18-0P**
RL: BPN (Biosynthetic preparation); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(regio- and **enantioselectivity** of **enzyme**-catalyzed hydrolysis of citric acid derivs.)

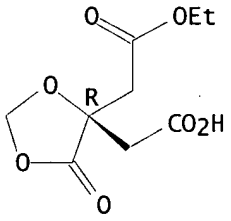
RN 199341-35-0 HCAPLUS
CN 1,3-Dioxolane-4,4-diacetic acid, 5-oxo-, monomethyl ester, (4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



RN 221303-18-0 HCAPLUS
CN 1,3-Dioxolane-4,4-diacetic acid, 5-oxo-, monoethyl ester, (4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



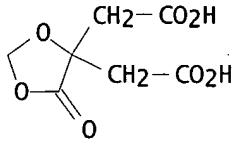
IT **9001-62-1, Lipase 9016-18-6, Esterase**
RL: CAT (Catalyst use); USES (Uses)
(regio- and **enantioselectivity** of **enzyme**-catalyzed hydrolysis of citric acid derivs.)

RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

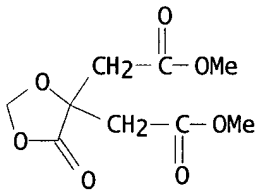
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9016-18-6 HCAPLUS
CN Esterase, carboxyl (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **144-16-1**
RL: RCT (Reactant); RACT (Reactant or reagent)
(regio- and **enantioselectivity** of **enzyme**-catalyzed hydrolysis of citric acid derivs.)

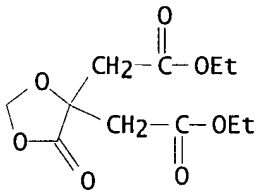
RN 144-16-1 HCAPLUS
CN 1,3-Dioxolane-4,4-diacetic acid, 5-oxo- (9CI) (CA INDEX NAME)



IT **77862-72-7P 112535-39-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(regio- and **enantioselectivity** of **enzyme**-catalyzed hydrolysis of citric acid derivs.)
RN 77862-72-7 HCAPLUS
CN 1,3-Dioxolane-4,4-diacetic acid, 5-oxo-, dimethyl ester (9CI) (CA INDEX NAME)



RN 112535-39-4 HCAPLUS
CN 1,3-Dioxolane-4,4-diacetic acid, 5-oxo-, diethyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:539418 HCAPLUS
DOCUMENT NUMBER: 125:275318
TITLE: **Lipase** AKG mediated **resolutions** of .alpha.,.alpha.-disubstituted 1,2-diols in organic solvents; remarkably high regio- and **enantioselectivity**
AUTHOR(S): Hof, Robert P.; Kellogg, Richard M.
CORPORATE SOURCE: Dep. Org. Mol. Inorg. Chem., Univ. Groningen, Groningen, 9747 AG, Neth.
SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1996), (16), 2051-2060
CODEN: JCPRB4; ISSN: 0300-922X
PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal
LANGUAGE: English

AB Diols, HOCH2CR(OH)Ph (I, R = Et, Pr, CH2Ph, 1-naphthylmethyl, etc.), which contain adjacent tertiary and primary hydroxy groups, can be selectively mono-acylated at the primary hydroxy group by many lipases in org. solvents. Since the reaction does not take place at the chiral tertiary center itself, obsd. enantioselectivities are usually low. Only the combination of one lipase, lipase AKG (Amano, Pseudomonas sp.), with selected substrates gives high enantioselectivities (E 20 to >200). Also, the solvent and acyl donor employed influences the outcome. On the basis of the results of lipase AKG towards substrates I, an active site model for this specific lipase has been developed which can account for the results obtained. Full exptl. details on the synthesis of diols I and enzymic prepn. of the acetates are given. Also, the abs. stereochem. of the enzymically prepd. diols I has been established by independent synthesis from (R)-mandelic acid.

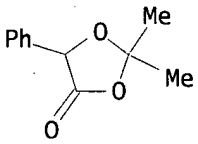
IT **9001-62-1, Lipase**
RL: CAT (Catalyst use); USES (Uses)
(prepn. and **lipase**-catalyzed **resoln.** of diols)

RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

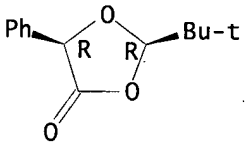
IT **6337-34-4 116907-30-3 182309-17-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. and **lipase**-catalyzed **resoln.** of diols)

RN 6337-34-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl- (8CI, 9CI) (CA INDEX NAME)



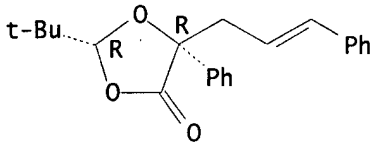
RN 116907-30-3 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-phenyl-, (2R,5R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



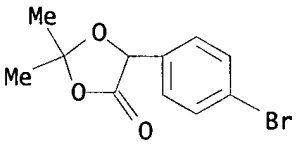
RN 182309-17-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 2-(1,1-dimethylethyl)-5-phenyl-5-(3-phenyl-2-propenyl)-, (2R-cis)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.

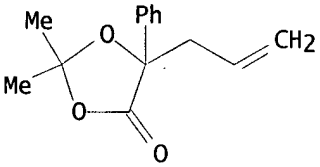


IT **42216-15-9P 129286-24-4P 136962-22-6P**
136962-23-7P 136962-24-8P 179759-91-2P
182308-77-6P 182308-78-7P 182308-80-1P
182308-81-2P 182308-82-3P 182308-88-9P
182308-89-0P 182308-94-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and **lipase**-catalyzed **resoln.** of diols)

RN 42216-15-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-bromophenyl)-2,2-dimethyl- (9CI) (CA INDEX NAME)

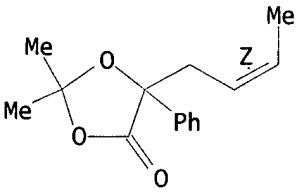


RN 129286-24-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl-5-(2-propenyl)- (9CI) (CA INDEX NAME)



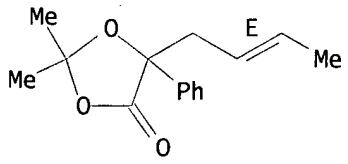
RN 136962-22-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(2-butenyl)-2,2-dimethyl-5-phenyl-, (Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

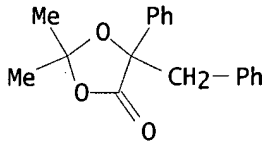


RN 136962-23-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(2-butenyl)-2,2-dimethyl-5-phenyl-, (E)- (9CI) (CA INDEX NAME)

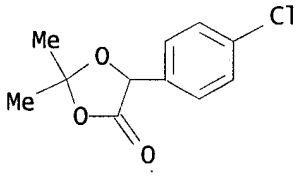
Double bond geometry as shown.



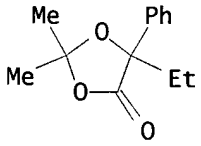
RN 136962-24-8 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl-5-(phenylmethyl)- (9CI) (CA INDEX NAME)



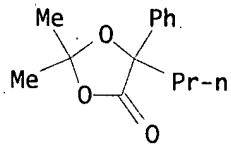
RN 179759-91-2 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-chlorophenyl)-2,2-dimethyl- (9CI) (CA INDEX NAME)



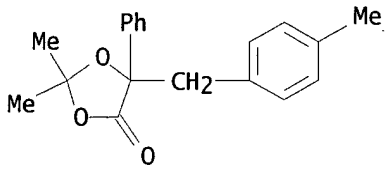
RN 182308-77-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-ethyl-2,2-dimethyl-5-phenyl- (9CI) (CA INDEX NAME)



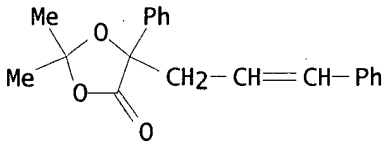
RN 182308-78-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl-5-propyl- (9CI) (CA INDEX NAME)



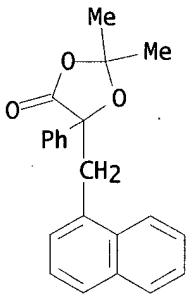
RN 182308-80-1 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-[(4-methylphenyl)methyl]-5-phenyl- (9CI) (CA INDEX NAME)



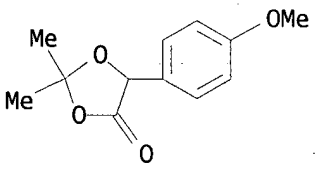
RN 182308-81-2 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl-5-(3-phenyl-2-propenyl)- (9CI) (CA INDEX NAME)



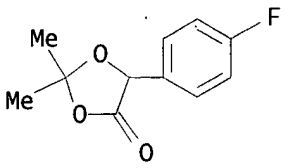
RN 182308-82-3 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-(1-naphthalenylmethyl)-5-phenyl- (9CI) (CA INDEX NAME)



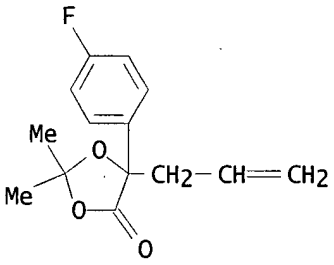
RN 182308-88-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-methoxyphenyl)-2,2-dimethyl- (9CI) (CA INDEX NAME)



RN 182308-89-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-fluorophenyl)-2,2-dimethyl- (9CI) (CA INDEX NAME)



RN 182308-94-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-fluorophenyl)-2,2-dimethyl-5-(2-propenyl)- (9CI) (CA INDEX NAME)

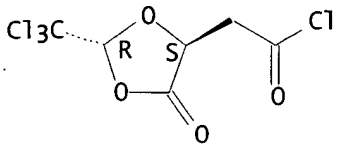


L45 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:386456 HCAPLUS
DOCUMENT NUMBER: 125:167859
TITLE: Kinetic **resolution** of trans-2-(1-pyrazolyl)cyclohexan-1-ol catalyzed by **lipase** B from Candida antarctica
AUTHOR(S): Barz, M.; Herdtweck, E.; Thiel, W. R.
CORPORATE SOURCE: Anorganisch-chemisches Inst., Technische Univ. Muenchen, Garching, D-85747, Germany
SOURCE: Tetrahedron: Asymmetry (1996), 7(6), 1717-1722
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The reaction of epoxycyclohexane with pyrazole gives trans-2-(1-pyrazolyl)cyclohexan-1-ol (rac-I) in high yields. Rac-I forms dimers in the solid state by linking one (1R,2R)- and one (1S,2S)-enantiomer via strong intermol. H-bonds. In the presence of the immobilized lipase B of Candida antarctica yeast, rac-I is acylated enantioselectively with isopropenylacetate acting as the acylating agent. Crystn. of the reaction mixt. gives enantiomerically pure (1S,2S)-I, which forms a helical structure in the solid state. The abs. configuration of this alc. was examd. by x-ray structure anal. of the esterification product with 5-oxo-(2R)-(trichloromethyl)-1,3-dioxolane-(4S)-acetylchloride.
IT **9001-62-1, Lipase**
RL: CAT (Catalyst use); USES (Uses)
(kinetic **resoln.** of pyrazolylcyclohexanol catalyzed by **lipase** B)
RN 9001-62-1 HCAPLUS
CN Lipase, triacylglycerol (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **173325-34-3**
RL: RCT (Reactant); RACT (Reactant or reagent)

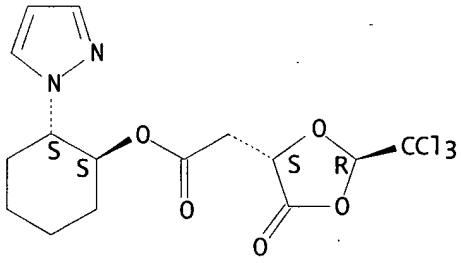
(kinetic **resoln.** of pyrazolylcyclohexanol catalyzed by **lipase** B)
RN 173325-34-3 HCAPLUS
CN 1,3-Dioxolane-4-acetyl chloride, 5-oxo-2-(trichloromethyl)-, (2R,4S)-(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

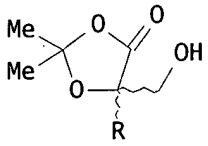


IT **180333-31-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(kinetic **resoln.** of pyrazolylcyclohexanol catalyzed by **lipase** B)
RN 180333-31-7 HCAPLUS
CN 1,3-Dioxolane-4-acetic acid, 5-oxo-2-(trichloromethyl)-, 2-(1H-pyrazol-1-yl)cyclohexyl ester, [2R-[2.alpha.,4.beta.(1S*,2S*)]]-(9CI) (CA INDEX NAME)

Absolute stereochemistry.



L45 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:259703 HCAPLUS
DOCUMENT NUMBER: 125:11273
TITLE: Synthesis and **Lipase**-Catalyzed **Resolution** of 5-(Hydroxymethyl)-1,3-dioxolan-4-ones: Masked Glycerol Analogs as Potential Building Blocks for Pharmaceuticals
AUTHOR(S): Hof, Robert P.; Kellogg, Richard M.
CORPORATE SOURCE: Department of Organic and Molecular Inorganic Chemistry, University of Groningen, Groningen, 9747 AG, Neth.
SOURCE: Journal of Organic Chemistry (1996), 61(10), 3423-7
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

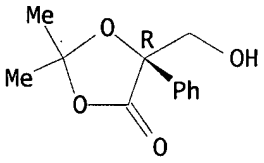
AB (Hydroxymethyl)-1,3-dioxolan-4-ones from mandelic and lactic acids and 1,5,5-trimethyl-3-phenyloxazolidin-2-one from mandelamide were .alpha.-alkylated using benzyl chloromethyl ether. Reductive debenzylation of the products of alkylation unmasked the hydroxymethyl groups gave the corresponding glycerol analogs, e.g. I (R = Me, Ph). The compds. obtained in this fashion were subsequently subjected to lipase-catalyzed resoln. in org. media. Depending on the lipase and substrate employed, enantiomeric ratios up to E = 200 were obsd. The obtained optically pure compds. can be considered as masked 2-substituted glycerol equiv., which could be used for the prepn. of tertiary (aryloxy)propanolamines, compds. having potential .beta.-blocking activity.

IT **177089-32-6P 177089-33-7P 177089-34-8P**
177089-35-9P 177089-36-0P 177089-37-1P
177089-38-2P 177089-39-3P 177089-40-6P
177089-41-7P 177089-42-8P 177089-43-9P
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(synthesis and **lipase**-catalyzed **resoln.** of hydroxymethyldioxolanones as potential potential .beta.-blocking activity)

RN 177089-32-6 HCAPLUS

CN 1,3-Dioxolan-4-one, 5-(hydroxymethyl)-2,2-dimethyl-5-phenyl-, (R)- (9CI) (CA INDEX NAME)

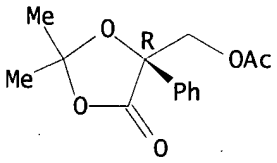
Absolute stereochemistry.



RN 177089-33-7 HCAPLUS

CN 1,3-Dioxolan-4-one, 5-[(acetyloxy)methyl]-2,2-dimethyl-5-phenyl-, (R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

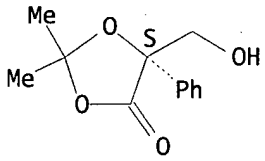


RN 177089-34-8 HCAPLUS

CN 1,3-Dioxolan-4-one, 5-(hydroxymethyl)-2,2-dimethyl-5-phenyl-, (S)- (9CI)

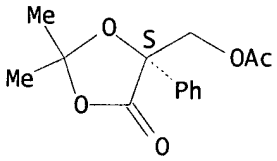
(CA INDEX NAME)

Absolute stereochemistry.



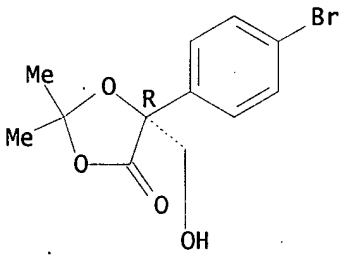
RN 177089-35-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(acetyloxy)methyl]-2,2-dimethyl-5-phenyl-, (S)-
(9CI) (CA INDEX NAME)

Absolute stereochemistry.



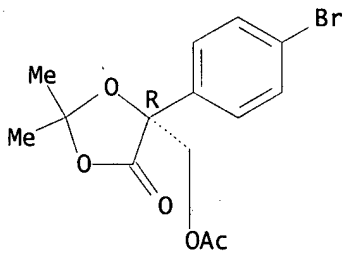
RN 177089-36-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-bromophenyl)-5-(hydroxymethyl)-2,2-dimethyl-,
(R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



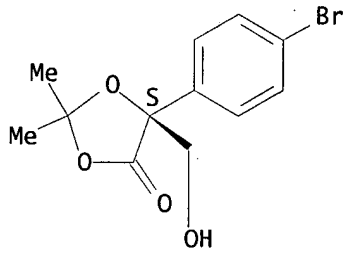
RN 177089-37-1 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(acetyloxy)methyl]-5-(4-bromophenyl)-2,2-dimethyl-,
(R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



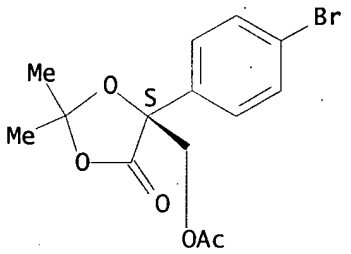
RN 177089-38-2 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-bromophenyl)-5-(hydroxymethyl)-2,2-dimethyl-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



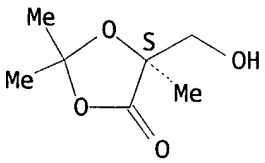
RN 177089-39-3 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(acetyloxy)methyl]-5-(4-bromophenyl)-2,2-dimethyl-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



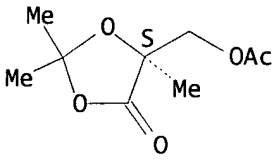
RN 177089-40-6 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(hydroxymethyl)-2,2,5-trimethyl-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



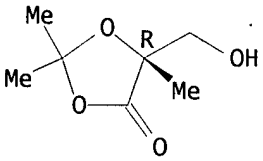
RN 177089-41-7 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(acetyloxy)methyl]-2,2,5-trimethyl-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



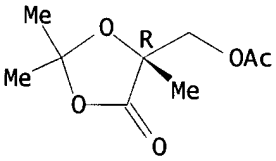
RN 177089-42-8 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(hydroxymethyl)-2,2,5-trimethyl-, (R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

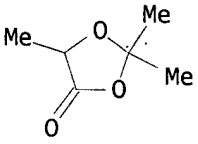


RN 177089-43-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-[(acetyloxy)methyl]-2,2,5-trimethyl-, (R)- (9CI) (CA INDEX NAME)

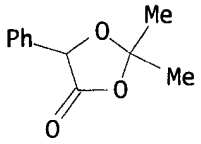
Absolute stereochemistry.



IT **4158-85-4 6337-34-4**
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and **lipase**-catalyzed **resoln.** of hydroxymethyldioxolanones as potential potential .beta.-blocking activity)
RN 4158-85-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2,5-trimethyl- (8CI, 9CI) (CA INDEX NAME)

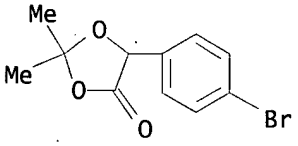


RN 6337-34-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl- (8CI, 9CI) (CA INDEX NAME)

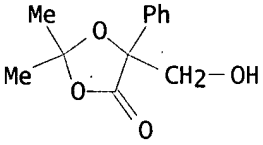


IT **42216-15-9P 81503-25-5P 81503-39-1P**
177089-27-9P 177089-28-0P 177089-30-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and **lipase**-catalyzed **resoln.** of hydroxymethyldioxolanones as potential potential .beta.-blocking activity)

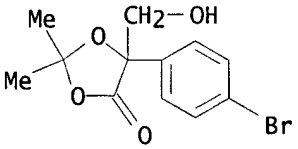
RN 42216-15-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-bromophenyl)-2,2-dimethyl- (9CI) (CA INDEX NAME)



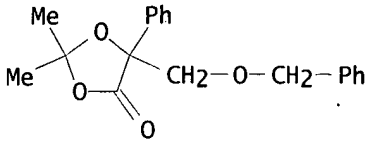
RN 81503-25-5 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(hydroxymethyl)-2,2-dimethyl-5-phenyl- (9CI) (CA INDEX NAME)



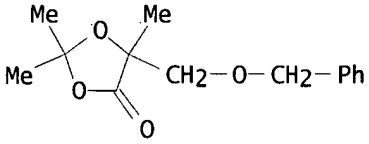
RN 81503-39-1 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(4-bromophenyl)-5-(hydroxymethyl)-2,2-dimethyl- (9CI) (CA INDEX NAME)



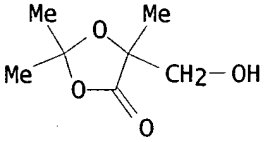
RN 177089-27-9 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2-dimethyl-5-phenyl-5-[(phenylmethoxy)methyl]- (9CI) (CA INDEX NAME)



RN 177089-28-0 HCAPLUS
CN 1,3-Dioxolan-4-one, 2,2,5-trimethyl-5-[(phenylmethoxy)methyl]- (9CI) (CA INDEX NAME)



RN 177089-30-4 HCAPLUS
CN 1,3-Dioxolan-4-one, 5-(hydroxymethyl)-2,2,5-trimethyl- (9CI) (CA INDEX NAME)



L45 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:608463 HCAPLUS
DOCUMENT NUMBER: 115:208463
TITLE: Synthesis of BCH-189 and related compounds
INVENTOR(S): Liotta, Dennis C.; Choi, Woo Baeg
PATENT ASSIGNEE(S): Emory University, USA
SOURCE: PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9111186	A1	19910808	WO 1991-US685	19910131
W: AU, BB, BG, BR, CA, FI, HU, JP, KP, KR, LK, MC, MG, MW, NO, RO, SD, SU				
RW: AT, BE, BF, BJ, CF, CG, CH, CM, DE, DK, ES, FR, GA, GB, GR, IT, LU, ML, MR, NL, SE, SN, TD, TG				
US 5204466	A	19930420	US 1990-473318	19900201
CA 2075189	AA	19900802	CA 1991-2075189	19910131
AU 9173004	A1	19910821	AU 1991-73004	19910131
AU 658136	B2	19950406		
EP 513200	A1	19921119	EP 1991-904454	19910131
EP 513200	B1	19980909		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				

HU 62566	A2	19930528	HU 1992-2496	19910131
JP 05505794	T2	19930826	JP 1991-504897	19910131
JP 07000618	B4	19950111		
RO 108564	B1	19940630	RO 1992-1056	19910131
AT 170750	E	19980915	AT 1991-904454	19910131
EP 872237	A1	19981021	EP 1998-201737	19910131
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
RU 2125558	C1	19990127	RU 1992-16627	19910131
ES 2076130	T3	19990301	ES 1991-904454	19910131
JP 2001019690	A2	20010123	JP 2000-160358	19910131
JP 2001352997	A2	20011225	JP 2001-151617	19910131
JP 2002012591	A2	20020115	JP 2001-151618	19910131
FI 9203446	A	19920730	FI 1992-3446	19920730
NO 9203014	A	19920730	NO 1992-3014	19920730
US 5539116	A	19960723	US 1993-15992	19930210
US 5914400	A	19990622	US 1995-472345	19950607
AU 9540319	A1	19960426	AU 1995-40319	19951211
AU 698859	B2	19981112		
NO 9700385	A	19920730	NO 1997-385	19970129
NO 9700386	A	19920730	NO 1997-386	19970129
HK 1014664	A1	20000526	HK 1998-116019	19981228
US 6153751	A	20001128	US 1999-337910	19990622
AU 9944745	A1	19991111	AU 1999-44745	19990826
AU 715577	B3	20000203	AU 1999-59571	19991119

PRIORITY APPLN. INFO.:

US 1990-473318	A	19900201
AU 1991-73004	A3	19910131
EP 1991-904454	A3	19910131
JP 1991-504897	A3	19910131
WO 1991-US685	A	19910131
US 1993-15992	A1	19930210
US 1994-215498	B1	19940321
US 1995-472345	A1	19950607

OTHER SOURCE(S): CASREACT 115:208463; MARPAT 115:208463

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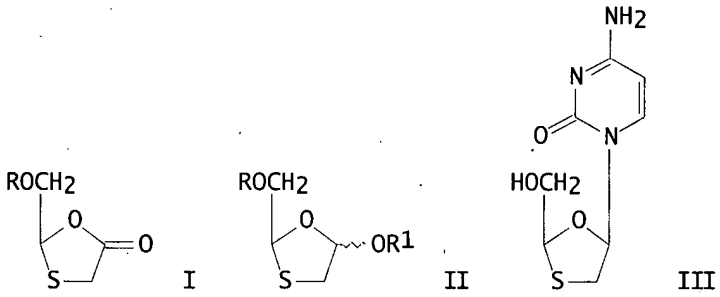
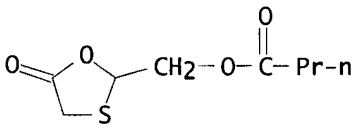


AB .beta.-Nucleosides are prepd. by reducing lactones I (R = protective group) followed by acylation, treating esters II (R1 = acyl) with a silylated pyrimidine nucleic acid base in the presence of SnCl4, and deblocking. Thus, I (R = SiPh2CMe3) was prepd. from allyl alc. via cyclization of HCOCH2OSiPh2CMe3 with HSCH2CO2H. Redn. of I (R = SiPh2CMe3) and acetylation gave II (R = SiPh2CMe3, R1 = Ac). The latter compd. was treated with silylated cytosine and SnCl4, followed by deblocking to give BCH-189 (III) in 100% enantiomeric excess.

IT **136891-16-2P**

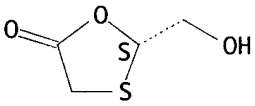
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)
(prepn. and **enzymic resoln.** of)
RN 136891-16-2 HCAPLUS
CN Butanoic acid, (5-oxo-1,3-oxathiolan-2-yl)methyl ester (9CI) (CA INDEX NAME)

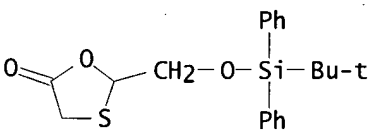


IT **136831-96-4P 137125-19-0P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and redn. of)
RN 136831-96-4 HCAPLUS
CN 1,3-Oxathiolan-5-one, 2-(hydroxymethyl)-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

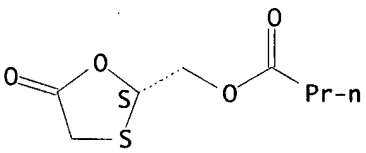


RN 137125-19-0 HCAPLUS
CN 1,3-Oxathiolan-5-one, 2-[[[(1,1-dimethylethyl)diphenylsilyl]oxy]methyl]- (9CI) (CA INDEX NAME)



IT **136831-88-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 136831-88-4 HCAPLUS
CN Butanoic acid, (5-oxo-1,3-oxathiolan-2-yl)methyl ester, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



Casreact search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=> D QUE L44
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L24             2 SEA FILE=REGISTRY ABB=ON  PLU=ON  ESTERASE/CN
L38               STR
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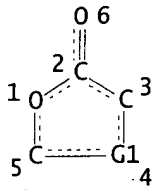
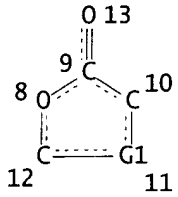
RRT



S @7

PRO



↙ product

reactant ↗

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VAR G1=O/7
NODE ATTRIBUTES:
CONNECT IS E2  RC AT   7
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  13

STEREO ATTRIBUTES: NONE
L40           153 SEA FILE=CASREACT SSS FUL L38 (  1469 REACTIONS)
L41          2315 SEA FILE=CASREACT ABB=ON  PLU=ON  L23 OR LIPASE
L42           652 SEA FILE=CASREACT ABB=ON  PLU=ON  L24 OR ESTERASE
L43          9720 SEA FILE=CASREACT ABB=ON  PLU=ON  ?ENZYM?
L44             4 SEA FILE=CASREACT ABB=ON  PLU=ON  L40 AND (L41 OR L42 OR L43)
```

- make the S on either —S— , no —S(=O)—

2 connections ↙ ↓

4 cites

=> d ibib abs FCRDREF 1-4

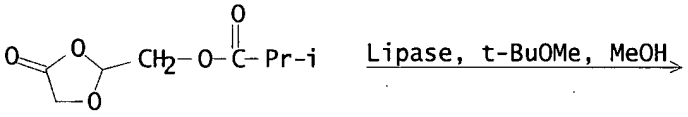
L44 ANSWER 1 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 137:139499 CASREACT
TITLE: Method for the **enzymatic** preparation of enantiomerically pure derivatives of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one
INVENTOR(S): Popp, Alfred; Stohrer, Juergen; Petersen, Hermann; Gilch, Andrea; Rockinger-Mechlem, Jodoca
PATENT ASSIGNEE(S): Consortium Fuer Elektrochemische Industrie Gmbh, Germany
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

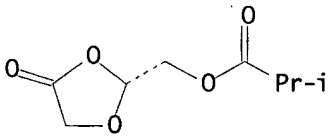
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1229127	A1	20020807	EP 2002-1124	20020124
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10104231	A1	20020808	DE 2001-10104231	20010131
JP 2002281997	A2	20021002	JP 2002-22091	20020130

PRIORITY APPLN. INFO.: DE 2001-10104231 20010131
OTHER SOURCE(S): MARPAT 137:139499

AB A process is provided for the prodn. of enantiomerically pure derivs. of 1,3-dioxolan-4-one and 1,3-oxathiolan-5-one by an **enzyme** mediated kinetic resoln. of a racemate. When a racemic 1,3-dioxolan-4-one or 1,3-oxathiolan-5-one deriv. is mixed with a **lipase** or **esterase** in the presence of an oxygen contg. nucleophile, the dioxolane/ oxathiolane ring of one enantiomer is hydrolyzed at faster rate than the other enantiomer. Thus, 2-methylpropanoic acid(4-oxo-1,3-dioxolan-2-yl)methyl ester is mixed with Novozym 435 (a com. **lipase**) and methanol, (+)-(R)-2-Methylpropanoic acid(4-oxo-1,3-dioxolan-2-yl)methyl ester is produced with an enantiomeric excess > 98%.

RX(1) OF 7



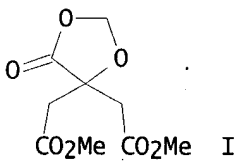


20%

REF: Eur. Pat. Appl., 1229127, 07 Aug 2002
NOTE: biotransformation, enzymic, novozym 435 used, batch process reaction, stereoselective

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

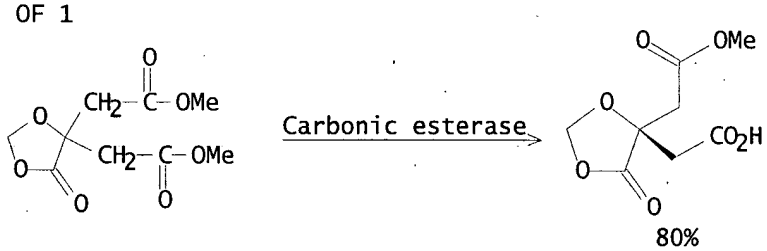
L44 ANSWER 2 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 130:237395 CASREACT
TITLE: Regio- and enantioselectivity of the **enzyme** -catalyzed hydrolysis of citric acid derivatives
AUTHOR(S): Chenevert, Robert; Ngatcha, Beatrice Tchedam; Rose, Yannick Stephane; Goupil, Daniel
CORPORATE SOURCE: Departement de chimie, Faculte des sciences et de genie, Universite Laval, QC, G1K 7P4, Can.
SOURCE: Tetrahedron: Asymmetry (1998), 9(24), 4325-4329
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB The hydrolysis of tri-Et citrate in the presence of three serine proteases (chymotrypsin, subtilisin BPN', subtilisin carlsberg) is highly regioselective and gives the sym. diester. Several **lipases** and proteases have the complementary regioselectivity and give the chiral diester. Pig liver **esterase**, Aspergillus niger **lipase** and Candida antarctica **lipase** give the chiral (R)-diester with good regio- and enantioselectivity. The stereoselective hydrolysis of the meso citric deriv. I in the presence of Candida antarctica **lipase** gives the corresponding (R)-monoester.

RX(1) OF 1

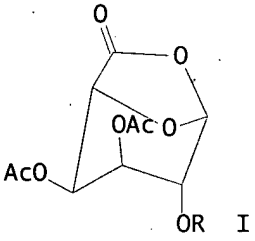


REF: Tetrahedron: Asymmetry, 9(24), 4325-4329; 1998
NOTE: phosphate buffer

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L44 ANSWER 3 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 117:27001 CASREACT

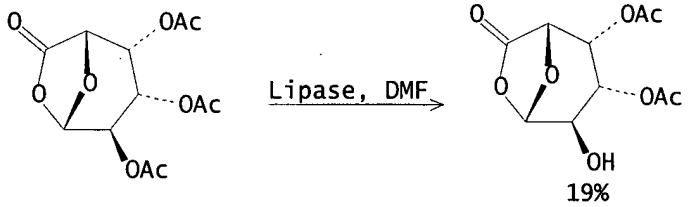
TITLE: Synthesis, crystal structure, and some reactions of 2,3,4-tri-O-acetyl-.beta.-D-galactopyranurono-6,1-lactone
AUTHOR(S): Vogel, Christian; Liebelt, Bernd; Steffan, Wolfram; Kristen, Helmut
CORPORATE SOURCE: Fachbereich Chem., Univ. Rostock, Rostock, O-2500, Germany
SOURCE: Journal of Carbohydrate Chemistry (1992), 11(3), 287-303
CODEN: JCACDM; ISSN: 0732-8303
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB D-Gluco-, D-galacto-, And D-manno-6,1-lactones of uronic acid were synthesized. A new synthetic approach based on the photobromination, hydrolysis, and oxidn. of the corresponding 1,6-anhydro sugars, is reported. Conformational studies and crystal structure of title compd. (I; R = Ac) (II), were undertaken. Regioselective deacetylation catalyzed by wheat germ **lipase** of II gave I (R = H).

RX(1) OF 1

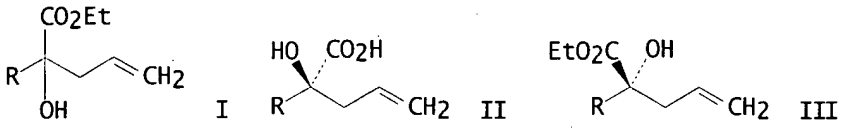


19%

REF: Journal of Carbohydrate Chemistry, 11(3), 287-303; 1992
NOTE: enzymic, buffer soln.

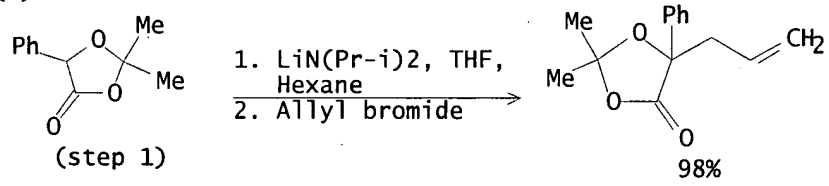
L44 ANSWER 4 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 113:211510 CASREACT
TITLE: Pig-liver-**esterase**-catalyzed hydrolyses of racemic .alpha.-substituted .alpha.-hydroxy esters
AUTHOR(S): Moorlag, Henk; Kellogg, Richard M.; Kloosterman, Marcel; Kaptein, Bernard; Kamphuis, Johan; Schoemaker, Hans E.
CORPORATE SOURCE: Bio-Org. Chem. Sect., DSM Res., Geleen, 6160 MD, Neth.
SOURCE: Journal of Organic Chemistry (1990), 55(23), 5878-81
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal

LANGUAGE: English
GI



AB Pig liver **esterase** catalyzed hydrolyses of some .alpha.-substituted .alpha.-hydroxy esters I (R = Ph, Me) give product acids II and recovered esters III in 9-94% enantiomeric excess. The obsd. enantiomeric selectivity could be rationalized using a recently proposed active site model, which proved to be of predictive value.

RX(2) OF 15



(step 1)

98%

REF: Journal of Organic Chemistry, 55(23), 5878-81; 1990

term search in WPIX (Derwent)

MARX 10/059,774

```
=> D QUE L50
L46         3603 SEA FILE=WPIX ABB=ON  PLU=ON  ?OXATHIOLAN? OR ?DIOXOLAN?
L47           28 SEA FILE=WPIX ABB=ON  PLU=ON  L46 AND (RESOLV? OR RESOLUTION)
L48          107 SEA FILE=WPIX ABB=ON  PLU=ON  L46 AND ENANTIO?
L50           19 SEA FILE=WPIX ABB=ON  PLU=ON  (L47 OR L48) AND (LIPASE OR
                 ESTERASE OR ?ENZYM?)
```

19 cites

=> d ibib abs L50 1-19

L50 ANSWER 1 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2002-601293 [65] WPIX
DOC. NO. CPI: C2002-170101
TITLE: Preparation of **enantiomerically** pure 1,3-**dioxolan**-4-one or 1,3-**oxathiolan**-5-one derivative, for use e.g. as antiviral agent intermediate, by **enantio**-selective **enzymatic** cleavage of unwanted isomer in racemate.
DERWENT CLASS: B03 D16
INVENTOR(S): GILCH, A; PETERSEN, H; POPP, A; ROCKINGER-MECHLEM, J; STOHRER, J
PATENT ASSIGNEE(S): (CONE) CONSORTIUM ELEKTROCHEM IND GMBH
COUNTRY COUNT: 28
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 1229127	A1	20020807	(200265)*	GE	14
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR					
CA 2369718	A1	20020731	(200265)	EN	
DE 10104231	A1	20020808	(200265)		
JP 2002281997	A	20021002	(200279)		10

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1229127	A1	EP 2002-1124	20020124
CA 2369718	A1	CA 2002-2369718	20020130
DE 10104231	A1	DE 2001-10104231	20010131
JP 2002281997	A	JP 2002-22091	20020130

PRIORITY APPLN. INFO: DE 2001-10104231 20010131
AN 2002-601293 [65] WPIX
AB EP 1229127 A UPAB: 20021010
NOVELTY - Preparation of **enantiomerically** pure 1,3-**dioxolan**-4-one or 1,3-**oxathiolan**-5-one derivatives (I) involves (i) contacting a mixture of the **enantiomers** of (I) with a hydrolytic **enzyme** and a nucleophile, so that the ring of one **enantiomer** of (I) is cleaved by the **enzyme**; and (ii) isolating the non-cleaved **enantiomer** of (I).
USE - **Enantiomerically** pure (I) are especially useful as intermediates for antiviral agents, particularly nucleoside analogs such as **dioxolane**-T or coviracil. More generally **enantiomerically** pure products are useful as starting materials or intermediates for agrochemicals and pharmaceuticals.
ADVANTAGE - **Enantiomers** of (I) are obtained inexpensively, with high **enantioselectivity** and regioselectivity. The products formed in cleavage of the unwanted **enantiomer** of (I) can be recovered and reacted to give further racemic (I) starting material, thus reducing costs and consumption of chemicals.
Dwg.0/0

L50 ANSWER 2 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2002-370027 [40] WPIX

CROSS REFERENCE: 2002-423615 [45]
DOC. NO. CPI: C2002-104756
TITLE: **Enantioselective lipase** and burkholderia cocovenenans sy-01 strain producing the same.
DERWENT CLASS: B03 D16
INVENTOR(S): BAE, H G; HAN, Y S; JUNG, C S; KIM, S I; LEE, B S; PARK, H I; PARK, J G; SHIN, P G; YOON, M Y
PATENT ASSIGNEE(S): (HANA-N) HANALL PHARM CO LTD; (KOAD) KOREA ADV INST SCI & TECHNOLOGY; (KYUN-N) KYUNG DONG PHARMA CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
KR 2001109632	A	20011212	(200240)*		1

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
KR 2001109632	A	KR 2000-29739	20000531

PRIORITY APPLN. INFO: KR 2000-29739 20000531
AN 2002-370027 [40] WPIX
CR 2002-423615 [45]
AB KR2001109632 A UPAB: 20021018
NOVELTY - Provided are **enantioselective lipase** and Burkholderia cocovenenans SY-01 strain producing the same, where the **lipase enantioselectively** decomposes ester bonding of a racemic compound, cis-2-(bromethyl)-2-(2,4-dichloro phenyl)-1,3-**dioxolane**-4-methyl acetate, as an intermediate of intraconazole.
DETAILED DESCRIPTION - **Enantioselective lipase** is produced from Burkholderia cocovenenans SY-01 strain (KFCC-11111), has 39KD of MW, and shows activity at 45-50 deg. C, pH7.0-9.0. A single isomer is isolated from cis-2-(bromethyl)-2-(2,4-dichloro phenyl)-13-**dioxolane**-4-methyl acetate using the culture of Burkholderia cocovenenans SY-01 strain.
Dwg.1/10

L50 ANSWER 3 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2002-141512 [19] WPIX
CROSS REFERENCE: 1993-038535 [05]
DOC. NO. CPI: C2002-043758
TITLE: (-)-4-amino-5-fluoro-1-(2-hydroxymethyl-1,3-**oxathiolan**-5-yl)-(1H)-pyrimidin-2-one or its salt, useful for treating viral infections.
DERWENT CLASS: A89 B03 D16
INVENTOR(S): DIONNE, G
PATENT ASSIGNEE(S): (BIOC-N) BIOCHEM PHARMA INC
COUNTRY COUNT: 17
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 1155695	A1	20011121	(200219)*	EN	15

R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1155695	A1 Div ex	EP 1992-307051	19920803
		EP 2001-119636	19920803

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1155695	A1 Div ex	EP 526253

PRIORITY APPLN. INFO: GB 1991-16601 19910801
AN 2002-141512 [19] WPIX
CR 1993-038535 [05]
AB EP 1155695 A UPAB: 20020321
NOVELTY - (-)-4-Amino-5-fluoro-1-(2-hydroxymethyl-1,3-**oxathiolan**-5-yl)-(1H)-pyrimidin-2-one (A) or its salt, is new.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the preparation of (A) involving separating (-)-**enantiomer** from a mixture also containing the (+)-**enantiomer**.

ACTIVITY - Antiviral; Anti-HIV; Hepatotropic; Antiinflammatory; Nootropic; Cytostatic; Antimicrobial. Antiviral activity of (A) in C8166 cells (human T-lymphoblastoid cell line, infected with HIV-1 strain RF) was determined by inhibition of syncytium formation according to Tochikura et al virology, 164, 652-546. (A) was administered in an amount of 0.14 mu g/ml. The 50% antiviral activity (%) involving the inhibition of syncytium formation was 0.0018.

MECHANISM OF ACTION - Inhibitor of retrovirus replication including human retrovirus such as human immuno deficiency virus.

USE - In the manufacture of a medicament for the treatment of viral, HIV or hepatitis B infection (claimed); in the treatment of AIDS related conditions such as AIDS related complex, progressive generalized lymphadenopathy, AIDS-related neurological conditions e.g. dementia or tropical paraparesis, anti HIV antibody positive and HIV-positive conditions, Kaposi's sarcoma, thrombocytopenia purpurea and other infections including Pneumocystis carinii.

ADVANTAGE - (-)-**enantiomer** of the compound is much more active than (+)-**enantiomer**. The (-)-**enantiomer** shows low toxicity.

Dwg.0/0

L50 ANSWER 4 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2001-589752 [66] WPIX
DOC. NO. CPI: C2001-174835
TITLE: New **esterase enzymes**, useful for **enantioselective** synthesis of e.g. alcohols, acids and lactones by hydrolysis of substrates.
DERWENT CLASS: B05 D16
INVENTOR(S): ALLEN, L; BRIKUM, I; FREIJE, D; MORIS-VARAS, F
PATENT ASSIGNEE(S): (THER-N) THERMOGEN INC
COUNTRY COUNT: 94
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001060986	A2	20010823	(200166)*	EN	37

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM

DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001038407 A 20010827 (200176)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001060986 A2		WO 2001-US5059	20010216
AU 2001038407 A		AU 2001-38407	20010216

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001038407 A	Based on	WO 200160986

PRIORITY APPLN. INFO: US 2000-183634P 20000218; US 2000-182863P 20000216; US 2000-183104P 20000217
AN 2001-589752 [66] WPIX
AB WO 200160986 A UPAB: 20011113
NOVELTY - **Esterase** (I) having the biochemical fingerprint (BF) of one of NE01-NE22, as defined by
(i) reaction and **enantioselectivity** profiles to 26 specified substrates and
(ii) the pNP (p-nitrophenyl) propionate profile.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for selective hydrolysis of substrates using (I).
USE - (I) are useful (i) for **enantioselective** hydrolysis of (thio)esters, e.g. for **resolving** racemates; (ii) for synthesis of optically active acids, alcohols, esters, lactones or detergents and (iii) in ripening of cheese.
Dwg.0/4

L50 ANSWER 5 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2000-339331 [29] WPIX
DOC. NO. CPI: C2000-102912
TITLE: **Enantioselective** conversion of **enantiomeric** mixtures of hydrophobic esters using a biphasic solvent system and biocatalyst, useful for preparing antiviral compounds.
DERWENT CLASS: A96 B03 D16
INVENTOR(S): WANG, Y F; YAO, Y
PATENT ASSIGNEE(S): (ALTU-N) ALTUS BIOLOGICS INC
COUNTRY COUNT: 91
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000022157	A1	20000420	(200029)*	EN	62

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2000011044 A 20000501 (200036)
EP 1119635 A1 20010801 (200144) EN
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT

	RO	SE	SI		
BR 9914375		A	20011120 (200202)		
CN 1329671		A	20020102 (200227)		
KR 2001099679	A		20011109 (200229)		
JP 2002527073	W		20020827 (200271)	65	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000022157	A1	WO 1999-US23405	19991008
AU 2000011044	A	AU 2000-11044	19991008
EP 1119635	A1	EP 1999-954779	19991008
		WO 1999-US23405	19991008
BR 9914375	A	BR 1999-14375	19991008
		WO 1999-US23405	19991008
CN 1329671	A	CN 1999-811893	19991008
KR 2001099679	A	KR 2001-704430	20010407
JP 2002527073	W	WO 1999-US23405	19991008
		JP 2000-576047	19991008

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2000011044	A	Based on	WO 200022157
EP 1119635	A1	Based on	WO 200022157
BR 9914375	A	Based on	WO 200022157
JP 2002527073	W	Based on	WO 200022157

PRIORITY APPLN. INFO: US 1998-103804P 19981009
AN 2000-339331 [29] WPIX
AB WO 200022157 A UPAB: 20000617
NOVELTY - A chiral, non-racemic ester is prepared from an **enantiomeric** mixture of the hydrophobic ester using a hydrolase **enzyme** in a biphasic solvent system.

DETAILED DESCRIPTION - Preparation of a chiral, nonracemic ester comprises:

(a) dispersing an **enantiomeric** mixture of a hydrophobic ester at 1-25% (w/v of the non-homogeneous system) in an organic solvent system; and

(b) contacting the organic mixture from (a) with an aqueous solvent system, providing **resolution** of the mixture to produce a chiral nonracemic ester and a non-racemic alcohol.

The hydrolase **enzyme** is dispersed in the organic component, aqueous component or the non-homogeneous system.

An INDEPENDENT CLAIM is included for a non-homogeneous system for producing a chiral, non-racemic hydrophobic ester comprising:

(i) a hydrolase **enzyme**;

(ii) a hydrophobic ester substrate;

(iii) an organic component; and

(iv) an aqueous component.

USE - For preparation of antiviral compounds, e.g. 2 hydroxymethyl-5-(5-fluorocytosin-1-yl)-1,3-**oxathiolane**.

ADVANTAGE - The use of a non-homogeneous system having incompletely water miscible organic co-solvents provides improved solvation for hydrophobic esters compared to systems using water miscible organic solvents.

Dwg.0/0

L50 ANSWER 6 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2000-195020 [17] WPIX
DOC. NO. CPI: C2000-060394
TITLE: Preparation of 5-oxo-7H-pyrido-(2,1-b)(1,3)thiazepine-7-carboxylic acid derivative used for treating cardiovascular diseases involves using new dioxalane intermediates.
DERWENT CLASS: B02 B03
INVENTOR(S): DILLON, J L; GODFREY, J D; JASS, P A; KOTNIS, A S; KRONENTHAL, D R; POWERS, G L; RACHA, S; RAMIG, K; SCHWINDEN, M D; SOUNDARARAJAN, N; SRIVASTAVA, S K; VENIT, J J
PATENT ASSIGNEE(S): (BRIM) BRISTOL-MYERS SQUIBB CO
COUNTRY COUNT: 86
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000003981	A2	20000127	(200017)*	EN	34
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW					
AU 9948528	A	20000207	(200029)		
US 6166227	A	20001226	(200103)		
US 6248882	B1	20010619	(200137)		
EP 1121351	A2	20010808	(200146)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
US 6329542	B1	20011211	(200204)		
KR 2001071895	A	20010731	(200208)		
MX 2001000252	A1	20010601	(200235)		
HU 2001005151	A2	20020429	(200238)		
JP 2002520389	W	20020709	(200259)		39
AU 753189	B	20021010	(200279)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 2000003981	A2		WO 1999-US14957	19990701
AU 9948528	A		AU 1999-48528	19990701
US 6166227	A	Provisional	US 1998-92944P	19980715
			US 1999-349867	19990708
US 6248882	B1	Provisional	US 1998-92944P	19980715
			US 2000-689209	20001012
EP 1121351	A2		EP 1999-932163	19990701
			WO 1999-US14957	19990701
US 6329542	B1	Provisional	US 1998-92944P	19980715
		Div ex	US 1999-349867	19990708
			US 2000-689215	20001012
KR 2001071895	A		KR 2001-700563	20010113
MX 2001000252	A1		MX 2001-252	20010109
HU 2001005151	A2		WO 1999-US14957	19990701
			HU 2001-5151	19990701
JP 2002520389	W		WO 1999-US14957	19990701
			JP 2000-560090	19990701
AU 753189	B		AU 1999-48528	19990701

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9948528	A	Based on	WO 200003981
EP 1121351	A2	Based on	WO 200003981
US 6329542	B1	Div ex	US 6166227
HU 2001005151	A2	Based on	WO 200003981
JP 2002520389	W	Based on	WO 200003981
AU 753189	B	Previous Publ.	AU 9948528
		Based on	WO 200003981

PRIORITY APPLN. INFO: US 1998-92944P 19980715; US 1999-349867 19990708; US 2000-689209 20001012; US 2000-689215 20001012

AN 2000-195020 [17] WPIX

AB WO 200003981 A UPAB: 20020730

NOVELTY - Preparation of (4S-(4 alpha (R asterisk),7 alpha ,10 alpha beta))-octahydro-4-((2-mercapto-1-oxo-3-phenylpropyl)amino)-5-oxo-7H-pyrido-(2,1-b)(1,3)thiazepine-7-carboxylic acid (X) involves using new dioxalane intermediates (III) and (IV).

DETAILED DESCRIPTION - Preparation of (4S-(4 alpha (R asterisk),7 alpha ,10 alpha beta))-octahydro-4-((2-mercapto-1-oxo-3-phenylpropyl)amino)-5-oxo-7H-pyrido-(2,1-b)(1,3)thiazepine-7-carboxylic acid (X) comprises:

(1) reacting a glycinamide compound of formula (I) with a **dioxolane** compound of formula (II);

(2) treating the obtained **dioxolane** compound of formula (III) with water under reflux;

(3) treating the obtained **dioxolane** pentanoic acid compound of formula (IV) to exchange the **dioxolane** acetal with a dimethoxy acetal and convert the carboxylic acid to the methyl ester;

(4) coupling the obtained (S)-2-amino-6,6-dimethoxyhexanoic acid, methyl ester (XI) with an N-protected amino acid of formula (V);

(5) removing the P2 mercapto group from the obtained dipeptide of formula (VI) followed by acid catalyzed cyclization;

(6) removing the P1 amino protecting group from the obtained lactam compound of formula (VII) followed by coupling with an acylmercaptoalkanoic acid compound of formula (VIII) and

(7) treating the obtained compound of formula (IX) to remove R6CO and convert the methyl ester to the carboxylic acid and produce (X).

L = a leaving group;

P1 = amino protecting group;

P2 = mercapto protecting group;

R6 = methyl or phenyl.

INDEPENDENT CLAIMS are included for the following:

(A) new compounds (III) and (IV);

(B) preparation of (III) and (IV) as in (1) and (2) above;

(C) preparation of (S)-2-amino-6,6-dimethoxyhexanoic acid, methyl ester as in (3) above or by steps (1)-(3) per se;

(D) preparation of (X) by steps (3)-(7) per se and

(E) storage stable salts of (S)-2-amino-6,6-dimethoxyhexanoic acid, methyl ester.

ACTIVITY - Cardiant.

MECHANISM OF ACTION - Neutral endopeptidase inhibitor; angiotensin converting **enzyme** inhibitor.

USE - (I) (omapatrilat) is used for treating cardiovascular diseases e.g. hypertension and congestive heart failure.

ADVANTAGE - Different stages of the process may be carried out at different manufacturing facilities to give increased flexibility.

Oxidation reaction and optical **resolution** are eliminated.
Dwg.0/0

L50 ANSWER 7 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2000-182440 [16] WPIX
DOC. NO. CPI: C2000-057086
TITLE: Stereoselective reductive amination of ketoacid derivatives, to give alpha-aminoalkanoic acid derivatives useful in synthesis of cardiovascular agents, using amino acid dehydrogenase and co-factor.
DERWENT CLASS: B03 B05 D16
INVENTOR(S): DONOVAN, M J; GOLDBERG, S; HANSON, R; JASS, P A; LI, W; PATEL, R; RAMIG, K; SZARKA, L J; VENIT, J J; HANSON, R L; PATEL, R N
PATENT ASSIGNEE(S): (BRIM) BRISTOL-MYERS SQUIBB CO; (HANS-I) HANSON R L; (JASS-I) JASS P A; (LIWW-I) LI W; (PATE-I) PATEL R; (RAMI-I) RAMIG K; (VENI-I) VENIT J J
COUNTRY COUNT: 84
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000004179	A1	20000127	(200016)*	EN	64
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW					
AU 9949735	A	20000207	(200029)		
US 6140088	A	20001031	(200057)		
EP 1097236	A1	20010509	(200128)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
KR 2001071908	A	20010731	(200208)		
US 2002049342	A1	20020425	(200233)		
MX 2001000512	A1	20010701	(200236)		
HU 2001005062	A2	20020429	(200238)		
JP 2002520065	W	20020709	(200259)		80
US 6468781	B1	20021022	(200277)#		
US 6486331	B2	20021126	(200281)		
AU 755530	B	20021212	(200305)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 2000004179	A1		WO 1999-US15343	19990707
AU 9949735	A		AU 1999-49735	19990707
US 6140088	A	Provisional	US 1998-92935P	19980715
			US 1999-350428	19990708
EP 1097236	A1		EP 1999-933744	19990707
			WO 1999-US15343	19990707
KR 2001071908	A		KR 2001-700599	20010115
US 2002049342	A1	Provisional	US 1998-92935P	19980715
		Div ex	US 1999-350428	19990708
		Div ex	US 2000-510925	20000222
			US 2001-848464	20010503
MX 2001000512	A1		MX 2001-512	20010115
HU 2001005062	A2		WO 1999-US15343	19990707

			HU 2001-5062	19990707
JP 2002520065	W		WO 1999-US15343	19990707
			JP 2000-560276	19990707
US 6468781	B1	Div ex	US 1999-350428	19990708
			US 2000-510925	20000222
US 6486331	B2	Provisional	US 1998-92935P	19980715
		Div ex	US 1999-350428	19990708
		Div ex	US 2000-510925	20000222
			US 2001-848464	20010503
AU 755530	B		AU 1999-49735	19990707

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9949735	A	Based on	WO 200004179
EP 1097236	A1	Based on	WO 200004179
US 2002049342	A1	Div ex	US 6140088
HU 2001005062	A2	Based on	WO 200004179
JP 2002520065	W	Based on	WO 200004179
US 6468781	B1	Div ex	US 6140088
US 6486331	B2	Div ex	US 6140088
AU 755530	B	Previous Publ.	AU 9949735
		Based on	WO 200004179

PRIORITY APPLN. INFO: US 1998-92935P 19980715; US 1999-350428 19990708; US 2000-510925 20000222; US 2001-848464 20010503

AN 2000-182440 [16] WPIX

AB WO 200004179 A UPAB: 20000330

NOVELTY - Production of alpha -aminoalkanoic acid derivatives (I) comprises reductive amination of corresponding keto compound (II) in presence of ammonia, an amino acid dehydrogenase (AADH) and co-factor.

DETAILED DESCRIPTION - Production of alpha -aminoalkanoic acid derivatives of formula (I) comprises reductive amination of corresponding keto compound of formula (II) using an amino acid dehydrogenase in presence of ammonia and co-factor.

R1 = H, 1-18C alkyl or monovalent cation;

R2 = 1,3-**dioxolan**-2-yl (a); -CH(OR3)2 (b) or 4,4-di-R4-1,2-dioxan-2-yl (c);

R3 = 1-18C alkyl;

R4 = H or R3.

INDEPENDENT CLAIMS are also included for the following:

(1) engineered yeast host cells that produce both phenylalanine dehydrogenase (PDH) and formate dehydrogenase (FDH) comprising: (a) a recombinant nucleic acid encoding PDH and optionally an endogenous nucleic acid encoding PDH; and (b) a recombinant and/or endogenous nucleic acid encoding FDH;

(2) engineered bacterial host cells containing recombinant nucleic acid that expresses a phenylalanine dehydrogenase and endogenous nucleic acid that expresses a formate dehydrogenase;

Pichia pastoris ATCC 74408 and ATCC 74433 and E. coli ATCC 98374; and

(3) compounds (II).

USE - (I) are intermediates in synthesis of compounds, described in US5508272, that inhibit angiotensin-converting **enzyme** and neutral endopeptidase, useful for treating cardiovascular disease.

ADVANTAGE - The reductive amination is **enantioselective** (giving the (S)-**enantiomer** with optical purity over 99%); requires only one step and provides high conversion of (II) and yields of (I) over 80 (preferably 99) %.

Dwg.0/6

L50 ANSWER 8 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1996-133434 [14] WPIX
DOC. NO. CPI: C1996-041262
TITLE: Optically active 1,2-di ol prepn. - by reacting **enantiomeric dioxolanone** mixt. with pig pancreatic **lipase** for selective hydrolysis.
DERWENT CLASS: B05 D16 E19
PATENT ASSIGNEE(S): (CHCC) CHISSO CORP
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 08023997	A	19960130	(199614)*		11

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 08023997	A	JP 1994-186406	19940714

PRIORITY APPLN. INFO: JP 1994-186406 19940714
AN 1996-133434 [14] WPIX
AB JP 08023997 A UPAB: 19960405
Prepn. of an optically active 1,2-diol comprises reacting a pig pancreatic **lipase** (or mixt. contg. pig pancreatic **lipase**) which can selectively hydrolyse the carbonate bond of 1 **enantiomer** in a mixt. of the cyclic carbonate of formula (I), with the **enantiomer** mixt. to form an optically active 1,2-diol of formula (II) or (III) and an optically active carbonate of the formula (IV) or (V).
The 1,2-diol is sepd. from the carbonate and the carbonate is hydrolysed in the presence of an alkali to prepare (II) or (III). Z = Me, O, S, NH, N(CH(CH3)2) or a gp. of formula (i), (ii), (iii), or (iv).
USE - The method can be used to prepare non-cyclic optically active (S) and (R)-1,2-diols in with a wide range of carbon numbers.
Dwg.0/0

L50 ANSWER 9 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1995-045617 [07] WPIX
DOC. NO. CPI: C1995-020514
TITLE: New hydroxy phosphinyl leucyl tryptophan derivs - are proendothelin convertase inhibitors useful for treating e.g. ischaemia, asthma etc..
DERWENT CLASS: B02
INVENTOR(S): DE, NANTEUIL G; REMOND, G; VERBEUREN, T
PATENT ASSIGNEE(S): (ADIR) ADIR & CIE; (ADIR) ADIR
COUNTRY COUNT: 22
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
FR 2707089	A1	19950106	(199507)*		19
AU 9466025	A	19950112	(199509)		
EP 639586	A1	19950222	(199512)	FR	13
R: AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE					
CA 2127067	A	19941231	(199513)	FR	
JP 07224091	A	19950822	(199542)		9

ZA 9404727	A	19950927 (199544)		19
US 5481030	A	19960102 (199607)		7
NZ 260873	A	19960126 (199610)		
NZ 270956	A	19960126 (199610)		
US 5591728	A	19970107 (199708)		6
US 5608045	A	19970304 (199715)		6
AU 677654	B	19970501 (199726)		
JP 2653976	B2	19970917 (199742)		9
CA 2127067	C	20001226 (200104)	FR	
EP 639586	B1	20010321 (200117)	FR	
R: AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE				
DE 69426908	E	20010426 (200130)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
FR 2707089	A1		FR 1993-7927	19930630
AU 9466025	A		AU 1994-66025	19940628
EP 639586	A1		EP 1994-401268	19940608
CA 2127067	A		CA 1994-2127067	19940629
JP 07224091	A		JP 1994-147687	19940629
ZA 9404727	A		ZA 1994-4727	19940630
US 5481030	A		US 1994-267971	19940629
NZ 260873	A		NZ 1994-260873	19940629
NZ 270956	A		NZ 1994-270956	19940629
US 5591728	A	Div ex	US 1994-267971	19940629
			US 1995-497811	19950703
US 5608045	A	Div ex	US 1994-267971	19940629
			US 1995-497812	19950703
AU 677654	B		AU 1994-66025	19940628
JP 2653976	B2		JP 1994-147687	19940629
CA 2127067	C		CA 1994-2127067	19940629
EP 639586	B1		EP 1994-401268	19940608
DE 69426908	E		DE 1994-626908	19940608
			EP 1994-401268	19940608

FILING DETAILS:

PATENT NO	KIND		PATENT NO
NZ 270956	A	Div ex	NZ 260873
US 5591728	A	Div ex	US 5481030
US 5608045	A	Div ex	US 5481030
AU 677654	B	Previous Publ.	AU 9466025
JP 2653976	B2	Previous Publ.	JP 07224091
DE 69426908	E	Based on	EP 639586

PRIORITY APPLN. INFO: FR 1993-7927 19930630
AN 1995-045617 [07] WPIX
AB FR 2707089 A UPAB: 19950602
Amino acid phosphonic acid derivs. of formula (I), their **enantiomers**, diastereoisomers, epimers and salts are new. R1 = OH, 1-6C alkoxy or amino opt. substd. by 1 - 2 1-6C alkyl; R2 = 1-6C alkyl opt. substd. by phenyl or 3-7C cycloalkyl; X1, X2 = -NH-, -O-, or -S-, R3 = H, 1-6C alkyl or phenyl; R4 = 1-6C alkyl (substd. by one or more OH, benzyloxy, benzyloxy carbonyl amino, amino, mono- or di-(1-6C)alkyl amino or acetoxy), 3-7C cycloalkyl (opt. substd. by one or more OH, benzyloxy or acetoxy) or R4-X2-PO(OR3)- = a gp. of formula (a); n = 0 - 1; R5 = OH or -CH2OH.

USE - (I) are useful as endothelin converting **enzyme** (proendothelin convertase) inhibitors and are useful in the treatment of ischaemia, hypertension, angina, myocardial infarction, renal insufficiency, shock, diabetes, hypercholesterolaemia, Raynauds disease, cardiac insufficiency, hypoxic pulmonary vasoconstriction, asthma, atherosclerosis, and arthritis.
Dwg.0/0

ABEQ US 5481030 A UPAB: 19960222
Cpd of formula (I) its **enantiomers**, diastereoisomers and epimers as well as its addition salts with a pharmaceutically-acceptable acid or base.

R1 = hydroxyl, (C1-C6) alkoxy or amino (opt. substd. with (C1-C6) alkyl); R2 = (C1-C6) alkyl, opt. substd. phenyl or (C3-C7) cycloalkyl; X1 = -NH-; X2 = O; R3 = hydrogen, (C1-C6) alkyl or phenyl; R4 = (C1-C6) alkyl opt. substd. with hydroxyl, benzyloxy, benzyloxy carbonylamino, amino, (C1-C6) mono- or dialkylamino, acetoxy, or 2,2-dimethyl- 1,3-**dioxolan**-4-yl; R5 = 3-indolylmethyl, naphthylmethyl, (C1-C6) alkyl, phenyl, or benzyl.
Dwg.0/0

ABEQ US 5591728 A UPAB: 19970220
A method for treating a mammal afflicted with a condition requiring an endothelin convertase inhibitor comprising the step of administering to the mammal an amount of a compound selected from those of formula (R4)-(X2)-P(=O)(OR3)X1-CH(R2)C(O)-NH-CH(R5)(-C(O)(R1)) (I) in which:

R1 represents hydroxyl, linear or branched (C1-C6) alkoxy, or amino which is unsubstituted or substituted with 1 or 2 linear or branched (C1-C6) alkyl,

R2 represents linear or branched (C1-C6) alkyl, unsubstituted or substituted with phenyl or C3-C7) cycloalkyl,

X1 represents -NH-,

X2 represents -O-,

R3 represents hydrogen, linear or branched (C1-C6) alkyl, or phenyl,

R4 represents linear or branched (C1-C6) alkyl which is substituted with one or more hydroxyl, benzyloxy, benzyloxycarbonylamino, amino linear or branched (C1-C6) mono- or dialkylamino, acetoxy, or 2,2-dimethyl-1,3-**dioxolan**-4-yl, such groups being identical or different,

R5 represent 3-indolylmethyl, naphthylmethyl, linear or branched (C1-C6) alkyl, phenyl, or benzyl,

its **enantiomers**, diastereoisomers and epimers as well as its addition salts with a pharmaceutically-acceptable acid or base, which is effective for alleviation of said condition.
Dwg.0/0

ABEQ US 5608045 A UPAB: 19970410
A process for preparing phosphoramidon disodium salt (N-[alpha -(S)-(rhamnopyranosyloxy)hydroxyphosphinyl]-(S)Leu-(S)Trp-OH disodium salt) wherein the starting material is one equivalent of rhamnosetriacetate, which is reacted in a pot reaction with one equivalent of phenyl dichlorophosphate in the presence of two equivalents of triethylamine and with (S)Leu-(S)Trp-OEt in a suitable solvent, whereafter the product is separated and saponified with an ethanolic base in the cold and the ethanol evaporated to leave an oil.
Dwg.0/0

L50 ANSWER 10 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1993-368810 [46] WPIX
DOC. NO. CPI: C1993-163746
TITLE: **Enantiomeric** pure beta-adrenergic blockers prepn. for antihypertensives - using **enantiomeric** enriched glycerol carbonate prepd. by esterifying

racemate with **enzyme** for selectivity.
DERWENT CLASS: B03 D16
INVENTOR(S): CASSEL, J M; OLIVERO, A G; POULSEN, J R
PATENT ASSIGNEE(S): (COGN-N) COGNIS INC
COUNTRY COUNT: 31
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9322451	A1	19931111	(199346)*	EN	23
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE					
W: AU BR CA CZ FI HU JP KR NO NZ PL RU SK UA					
AU 9339781	A	19931129	(199411)		
US 5326885	A	19940705	(199426)		6

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9322451	A1		WO 1993-US3514	19930419
AU 9339781	A		AU 1993-39781	19930419
US 5326885	A	Cont of	US 1992-877556	19920501
			US 1993-140799	19931021

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9339781	A	Based on	WO 9322451

PRIORITY APPLN. INFO: US 1992-877556 19920501
AN 1993-368810 [46] WPIX
AB WO 9322451 A UPAB: 19940103
Prepn. comprises esterifying the racemate under the influence of a hydrolytic **enzyme** which selectively esterifies the S isomer of the racemate.

Also new is the prepn. of an **enantiomerically** pure beta-adrenergic blocker of formula (III) comprising reacting an **enantiomerically** enriched glycerol carbonate of formula (I) with a reactant of formula ArOM1 (IV) to give an intermediate of formula (II) and reacting (II) with an amine of formula NR1R2R3 in the presence of a halide salt of formula M2X. In the formulae, L = leaving gp. of alkyl sulphonate, aryl sulphonate, I, Br or Cl; Ar = opt. substd. 6-20C aryl; M1 = Li, Na or K; R1, R2 = alkyl, aryl or benzyl; X = F, Cl, Br or I; and M2 = Li, Na, K, Mg, NMe4, N(Bu)4 or P(Bu)4.

USE/ADVANTAGE - (III) are beta-adrenergic blockers e.g. S-atenolol, S-toliprolol, S-bunolol, S-peributolol, S-propanolol, S-timolol and other aryloxy- propanolamine antihypertensive agents. The prodn. prepares **enantiomerically** pure pharmaceutical prods., esp. pref. by avoiding the potential for an inactive **enantiomer** to interfere with the activity of the therapeutically effective isomer or to produce adverse side effects.

Dwg.0/0
ABEQ US 5326885 A UPAB: 19940817
(S)-2-oxo-4-(sulphonyloxymethyl) -1,3-**dioxolanes** of formula (I) contain **enzymically** enriched (R)-glycerol 1,3-carbonate units. In (I), R is opt. cyclopentyl- or cyclohexyl-substd. 1-20C alkyl or 3-6C cycloalkyl, or opt. halogen-, NO2- or alkyl-substd. 6-10C aryl.

USE/ADVANTAGE - The prods. are intermediates for the prepn. of (R)-glycerol carbonate and **enantiomerically** pure beta-adrenergic

blockers. **Enzymes** are available for the specific hydrolysis or esterification of (S)-glycerol carbonate, facilitating the prepn. of corresp. (R)-**enantiomers**.
Dwg.0/0

L50 ANSWER 11 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1992-316114 [38] WPIX
CROSS REFERENCE: 1991-252418 [34]; 1992-316105 [38]; 1998-085641 [06]
DOC. NO. CPI: C1992-140435
TITLE: New antiviral 5-(5-fluoro-cytosin-1-yl)-1,3-**oxathiolane** nucleoside(s) - for treating HIV, HBV and SIV infections, and related conditions e.g. ARG, PGL, Kaposi's sarcoma, neuropathy etc..
DERWENT CLASS: B02 B03 D16
INVENTOR(S): CHOI, W; LIOTTA, D C; SCHINAZI, R F
PATENT ASSIGNEE(S): (UYEM-N) UNIV EMORY
COUNTRY COUNT: 40
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9214743	A2	19920903	(199238)*	EN	72
RW: AT BE CH DE DK ES FR GB GR IT LU MC NL OA SE					
W: AU BB BG BR CA FI HU JP KP KR LK MG MW NO PL RO RU SD					
AU 9215617	A	19920915	(199251)		
CN 1065065	A	19921007	(199324)		
PT 100151	A	19930531	(199325)		
CZ 9200497	A3	19930317	(199329)		
FI 9303684	A	19930906	(199347)		
NO 9302980	A	19930820	(199347)		
EP 575482	A1	19931229	(199401)	EN	
R: AT BE CH DE DK ES FR GB GR IT LI LU MC NL SE					
BR 9205661	A	19940524	(199424)		
HU 65548	T	19940628	(199429)		
JP 06508605	W	19940929	(199443)		
WO 9214743	A3	19921029	(199511)		
AU 665187	B	19951221	(199607)		
AU 9537943	A	19960314	(199618)		
NZ 241625	A	19960326	(199618)		
NZ 250842	A	19960326	(199618)		
AU 679649	B	19970703	(199735)		
CN 1127301	A	19960724	(199749)		
JP 10147586	A	19980602	(199832)		32
AU 9880773	A	19981015	(199902)		
CN 1203232	A	19981230	(199920)		
JP 2901160	B2	19990607	(199928)		31
US 5914331	A	19990622	(199931)		
EP 984013	A2	20000308	(200017)	EN	
R: AT BE CH DE DK ES FR GB GR IT LI LU MC NL SE					
IL 100965	A	19991231	(200018)		
KR 172590	B1	19990201	(200039)		
US 6114343	A	20000905	(200044)		
AU 2000066703	A	20010111	(200108)#		
NO 312399	B1	20020506	(200238)		
JP 3292830	B2	20020617	(200242)		28

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE

WO 9214743	A2		WO 1992-US1339	19920220
AU 9215617	A		AU 1992-15617	19920220
			WO 1992-US1339	19920220
CN 1065065	A		CN 1992-101981	19920222
PT 100151	A		PT 1992-100151	19920221
CZ 9200497	A3		CS 1992-497	19920220
FI 9303684	A		WO 1992-US1339	19920220
			FI 1993-3684	19930820
NO 9302980	A		WO 1992-US1339	19920220
			NO 1993-2980	19930820
EP 575482	A1		EP 1992-908027	19920220
			WO 1992-US1339	19920220
BR 9205661	A		BR 1992-5661	19920220
			WO 1992-US1339	19920220
HU 65548	T		WO 1992-US1339	19920220
			HU 1993-2377	19920220
JP 06508605	W		JP 1992-507549	19920220
			WO 1992-US1339	19920220
AU 665187	B		AU 1992-15617	19920220
AU 9537943	A	Div ex	AU 1992-15617	19920220
			AU 1995-37943	19951120
NZ 241625	A		NZ 1992-241625	19920217
NZ 250842	A		NZ 1992-250842	19920217
AU 679649	B	Div ex	AU 1992-15617	19920220
			AU 1995-37943	19951120
CN 1127301	A	Div ex	CN 1992-101981	19920222
			CN 1995-109814	19920222
JP 10147586	A	Div ex	JP 1992-507549	19920220
			JP 1997-340469	19920220
AU 9880773	A	Div ex	AU 1995-37943	19951120
			AU 1998-80773	19980817
CN 1203232	A	Div ex	CN 1992-101981	19920222
			CN 1998-108905	19920222
JP 2901160	B2		JP 1992-507549	19920220
			WO 1992-US1339	19920220
US 5914331	A	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		CIP of	US 1991-736089	19910726
		Cont of	US 1992-831153	19920212
			US 1995-488097	19950607
EP 984013	A2	Div ex	EP 1992-908027	19920220
			EP 1999-203367	19920220
IL 100965	A		IL 1992-100965	19920217
KR 172590	B1		WO 1992-US1339	19920220
			KR 1993-702516	19930821
US 6114343	A	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		CIP of	US 1991-736089	19910726
		CIP of	US 1991-776072	19911011
		Cont of	US 1992-831153	19920212
		Cont of	US 1992-846303	19920305
		Cont of	US 1995-451392	19950526
			US 1995-482875	19950607
AU 2000066703	A	Div ex	AU 1998-80773	19980817
			AU 2000-66703	20001024
NO 312399	B1		WO 1992-US1339	19920220
			NO 1993-2980	19930820
JP 3292830	B2	Div ex	JP 1992-507549	19920220
			JP 1997-340469	19920220

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9215617	A	Based on	WO 9214743
EP 575482	A1	Based on	WO 9214743
BR 9205661	A	Based on	WO 9214743
HU 65548	T	Based on	WO 9214743
JP 06508605	W	Based on	WO 9214743
AU 665187	B	Previous Publ.	AU 9215617
		Based on	WO 9214743
NZ 250842	A	Div ex	NZ 241625
AU 679649	B	Previous Publ.	AU 9537943
JP 2901160	B2	Previous Publ.	JP 06508605
		Based on	WO 9214743
US 5914331	A	CIP of	US 5204466
		CIP of	US 5210085
EP 984013	A2	Div ex	EP 575482
US 6114343	A	CIP of	US 5204466
		CIP of	US 5210085
NO 312399	B1	Previous Publ.	NO 9302980
JP 3292830	B2	Previous Publ.	JP 10147586

PRIORITY APPLN. INFO: US 1992-831153 19920212; US 1991-659760 19910222; US 1991-736089 19910726; US 1990-473318 19900201; US 1995-488097 19950607; US 1991-776072 19911011; US 1992-846303 19920305; US 1995-451392 19950526; US 1995-482875 19950607; AU 2000-66703 20001024

AN 1992-316114 [38] WPIX

CR 1991-252418 [34]; 1992-316105 [38]; 1998-085641 [06]

AB WO 9214743 A UPAB: 20020704

beta-2-Hydroxymethyl -5-(5-fluorocytosin-1-yl -1,3-**oxathiolane** (FTC) as (I)-D,L, (-)-L, or (+)-D isomers, their derivs. all of formula (I) or their salts, are new.

In (I) R1, R2 independently = alkyl, carboxylic ester in which the non-carbonyl portion is straight, branched or cyclic alkyl, alkoxyalkyl, aralkyl, aryloxyalkyl, aryl including phenyl opt. substd. with halo, 1-4C alkyl, or 1-4C alkoxy, sulphonate ester, alkyl or aralkyl sulphonyl, mono-m di- or tri-phosphate ester, or amino acid ester; and one of R1, R2 can be H.

Also claimed is a method for the **resolution** of nucleoside **enantiomers**, comprising exposure of the racemate to an **enzyme** that pref. catalyses a reaction in one of the **enantiomers**.

USE/ADVANTAGE - FTC shows surprisingly high activity against HIV with very low toxicity. It competitively inhibits HIV-1 reverse transcriptase with a K1 of 0.2 micromolar, using a poly(I) oligo (dC) template primer. It is non-toxic to peripheral bone marrow cells at upto 50 micromolar, and other cell lines of 200 micromolar.

Dwg.0/12

L50 ANSWER 12 OF 19 WPIX (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 1992-316105 [38] WPIX

CROSS REFERENCE: 1991-252418 [34]; 1992-316114 [38]; 1998-085641 [08]

DOC. NO. CPI: C1992-140426

TITLE: 1,3-**Diox lane** nucleoside analogues prodn., useful as antiviral agents - from protected 2-hydroxymethyl -4-acyloxy-1,3-**dioxolane** and

protected purine or pyrimidine base using titanium catalyst.
DERWENT CLASS: B02 B03
INVENTOR(S): CHOI, W; LIOTTA, D C; SCHINAZI, R F; CHENG, Y
PATENT ASSIGNEE(S): (UYEM-N) UNIV EMORY; (UYYA) UNIV YALE
COUNTRY COUNT: 21
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9214729	A1	19920903	(199238)*	EN	40
RW: AT BE CH DE DK ES FR GB GR IT LU MC NL SE					
W: AU CA JP US					
AU 9214372	A	19920915	(199251)		
US 5210085	A	19930511	(199320)		24
ZA 9201251	A	19931027	(199348)		79
US 5276151	A	19940104	(199402)		10
US 5728575	A	19980317	(199818)		19
US 5814639	A	19980929	(199846)		
US 5827727	A	19981027	(199850)		19
US 5852027	A	19981222	(199907)		
US 5892025	A	19990406	(199921)		
IL 100965	A	19991231	(200018)		
US 6069252	A	20000530	(200033)		
KR 172590	B1	19990201	(200039)		
US 6346627	B1	20020212	(200219)		
US 2002143194	A1	20021003	(200267)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9214729	A1		WO 1992-US1393	19920221
AU 9214372	A		AU 1992-14372	19920221
			WO 1992-US1393	19920221
US 5210085	A	CIP of	US 1990-473318	19900201
			US 1991-659760	19910222
ZA 9201251	A		ZA 1992-1251	19920220
US 5276151	A	CIP of	US 1990-473318	19900201
		Cont of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
			US 1991-803028	19911206
US 5728575	A	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
		Cont of	US 1993-92248	19930715
		Cont of	US 1995-402730	19950313
			US 1995-485318	19950607
US 5814639	A	CIP of	US 1990-473318	19900201
		Div ex	US 1991-659760	19910222
			US 1993-17820	19930216
US 5827727	A	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
		Cont of	US 1993-92248	19930715
		Cont of	US 1995-402730	19950313
			US 1995-483653	19950607
US 5852027	A	CIP of	US 1991-659760	19910222
		CIP of	US 1991-736089	19910726
		CIP of	US 1991-803028	19911206

			WO 1992-US1393	19920221
			US 1993-150012	19931109
US 5892025	A	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
		Cont of	US 1993-92248	19930715
		Cont of	US 1995-402730	19950313
		Div ex	US 1995-483653	19950607
			US 1998-115780	19980714
IL 100965	A		IL 1992-100965	19920217
US 6069252	A	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
		Cont of	US 1993-92248	19930715
		Cont of	US 1995-402730	19950313
			US 1995-474406	19950607
KR 172590	B1		WO 1992-US1339	19920220
			KR 1993-702516	19930821
US 6346627	B1	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
		Cont of	US 1993-92248	19930715
		Cont of	US 1995-402730	19950313
			US 1995-482233	19950607
US 2002143194	A1	CIP of	US 1990-473318	19900201
		CIP of	US 1991-659760	19910222
		Cont of	US 1991-736089	19910726
		Cont of	US 1993-92248	19930715
		Cont of	US 1995-402730	19950313
		Cont of	US 1995-482233	19950607
			US 2002-73734	20020211

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9214372	A	Based on	WO 9214729
US 5728575	A	CIP of	US 5204466
		CIP of	US 5210085
US 5814639	A	CIP of	US 5204466
		Div ex	US 5210085
US 5827727	A	CIP of	US 5204466
		CIP of	US 5210085
US 5852027	A	CIP of	US 5210085
		CIP of	US 5276151
		Based on	WO 9214729
US 5892025	A	CIP of	US 5204466
		CIP of	US 5210085
		Div ex	US 5827727
US 6069252	A	CIP of	US 5204466
		CIP of	US 5210085
US 6346627	B1	CIP of	US 5204466
		CIP of	US 5210085
US 2002143194	A1	CIP of	US 5204466
		CIP of	US 5210085
		Cont of	US 6346627

PRIORITY APPLN. INFO: US 1991-803028 19911206; US 1991-659760 19910222; US 1991-736089 19910726; US 1990-473318 19900201; US 1993-92248

19930715; US 1995-402730 19950313; US
1995-485318 19950607; US 1993-17820
19930216; US 1995-483653 19950607; US
1993-150012 19931109; US 1998-115780
19980714; US 1992-831153 19920212; US
1995-474406 19950607; US 1995-482233
19950607; US 2002-73734 20020211

AN 1992-316105 [38] WPIX
CR 1991-252418 [34]; 1992-316114 [38]; 1998-085641 [08]
AB WO 9214729 A UPAB: 20021018
2'-Deoxy-5-fluoro -3'-oxacytidine (FDOC) and its (+) and (-) **enantiomers** are new.

Prodn. of 1,3-**dioxolane** nucleosides (I) is effected by reacting a 2-(protected hydroxymethyl) -4-acyloxy-1,3-**dioxolane** (II) with a protected purine or pyrimidine base (III) in the presence of a Ti catalyst of formula Ti(X)n(Y)4-n (IV) n = 2-4; X = Cl, Br or I; Y = alkoxy, aryloxy, NH2, mono- or dialkylamino, mono- or diarylamino alkylarylamino, or Y+Y is a divalent gp. bonded to Ti through an alkoxy O atom and an amino N atom).

Optical **resolution** of racemic cpds. (I) is effected by treatment with an **enzyme** that preferentially catalyses a reaction in one of the **enantiomers**.

USE/ADVANTAGE - Cpds. (I), including FDOC, are antiviral agents esp. useful for treating HIV infections. Process (B) provides high beta-stereoselectivity at the C1' position.

Dwg.0/2

ABEQ US 5210085 A UPAB: 19931113
Treating HIV in humans comprises admin., of a beta isomer of a 2'deoxy-5-fluoro-3'-thiacytidine of formula (I) where Y is H, opt. substd. alkyl, cycloalkyl or acyl; and R is H, OH, oxyacylormono-, di or triphosphate. (I) is pref. 4-N-acetyl-2'-deoxy-5-fluoro-3'-thia-cytidine; 4-N-acetyl-5'-butyryl-2'-deoxy-5- fluoro-3'- thiacytidine or 5'-butyryl-2'-deoxy-5-fluoro-3'-thiacytidine.

USE/ADVANTAGE - (I) are non toxic.

0/0

Dwg.0/0

ABEQ ZA 9201251 A UPAB: 19940120
Method comprises administering an effective amount of 2-hydroxymethyl-5-(5-fluorocytosin-1-yl)-1,3-**oxathiolane** of formula (I), a pharmaceutically acceptable derivative thereof, including a 5' or N4 alkylated or acylated derivative, or a pharmaceutically acceptable salt thereof, in a pharmaceutically acceptable carrier.

A process for the **resolution** of a racemic mixture of nucleoside **enantiomers** is also disclosed that includes the step of exposing the racemic mixture to an **enzyme** that preferentially catalyses a reaction in one of the **enantiomers**.

USE - For treatment of HIV and HBV infection in humans.

ABEQ US 5276151 A UPAB: 19940223
Prepn. of 1,3-**dioxolane** nucleosides comprises reaction of a 2-O-protected-5-O-acyl-1,3-**dioxolane** with a purine or pyrimidine having protected NH and OH gps. in the presence of a Ti halide catalyst of formula RiXnYm, where n is 2-4, m is 4-n, X is Cl, Br or I, and Y is alkaloxy or opt. alkyl- and/or aryl- mono- or di-substd. NH2. Most of the prod. has a beta-structure at the C-1'-position of the 1,3-**dioxolane** ring. Typical prod. is 2-hydroxymethyl-5-(thymidine-1-yl or 5-fluorocytosine-1-yl) -1,3-**dioxolane**.

USE - The prods. are potential therapeutics for HIV infection (AIDS).

Dwg.0/2

ABEQ US 5728575 A UPAB: 19980507
2'-Deoxy-5-fluoro -3'-oxacytidine (FDOC) and its (+) and (-)

enantiomers are new.

Prodn. of 1,3-**dioxolane** nucleosides (I) is effected by reacting a 2-(protected hydroxymethyl) -4-acyloxy-1,3-**dioxolane** (II) with a protected purine or pyrimidine base (III) in the presence of a Ti catalyst of formula Ti(X)n(Y)4-n (IV) n = 2-4; X = Cl, Br or I; Y = alkoxy, aryloxy, NH2, mono- or dialkylamino, mono- or diarylamino alkylarylamino, or Y+Y is a divalent gp. bonded to Ti through an alkoxy O atom and an amino N atom).

Optical **resolution** of racemic cpds. (I) is effected by treatment with an **enzyme** that preferentially catalyses a reaction in one of the **enantiomers**.

USE/ADVANTAGE - Cpds. (I), including FDOC, are antiviral agents esp. useful for treating HIV infections. Process (B) provides high beta-stereoselectivity at the C1' position.

Dwg.0/8

L50 ANSWER 13 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1991-353701 [48] WPIX
DOC. NO. CPI: C1991-152542
TITLE: (-)-Cis-4-amino-1-(2-hydroxymethyl-1,3-**oxathiolanyl**)-1H-pyrimidinone - useful in treating viral infections, e.g. HIV has lower cytotoxicity than (plus)-**enantiomer**.
DERWENT CLASS: B03
INVENTOR(S): COATES, J A V; MUTTON, I M; PENN, C R; STORER, R; WILLIAMSON, C; COATES, J; MUTTON, I; PENN, C; COATES, J A
PATENT ASSIGNEE(S): (BIOC-N) BIOCHEM PHARMA INC; (IAFB-N) IAF BIOCHEM INT INC; (IAFB-N) IAF BIO CHEM INT INC; (SHIL-N) SHILY BIOLOGICAL CHEM CO LTD; (IAFB-N) IAF BIOCHEM INT
COUNTRY COUNT: 39
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9117159	A	19911114	(199148)*		
RW: AT BE CH DE DK ES FR GB GR IT LU NL OA SE					
W: AU BG CA FI HU JP KR LK NO PL RO SU US					
AU 9177719	A	19911127	(199210)		
PT 97520	A	19920131	(199210)		
FI 9106165	A	19911230	(199213)		
ZA 9103293	A	19920226	(199214)		34
NO 9200018	A	19920102	(199219)		
CS 9101251	A2	19920115	(199233)		
CN 1058214	A	19920129	(199240)		
JP 05501117	W	19930304	(199314)		14
HU 64335	T	19931228	(199405)		
NZ 238017	A	19940627	(199426)		
AU 651345	B	19940721	(199432)		
EP 625150	A1	19941123	(199445)	EN	
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE					
FI 9504183	A	19950906	(199548)		
IL 98025	A	19961016	(199648)		
NO 180377	B	19961230	(199707)		
CN 1108655	A	19950920	(199733)		
RO 112616	B1	19971128	(199819)		
SG 46383	A1	19980220	(199821)		
RU 2099338	C1	19971220	(199832)		18
KR 9607532	B1	19960605	(199919)		
JP 11080153	A	19990326	(199923)		15
JP 2927546	B2	19990728	(199935)		16

JP 2000128787 A 20000509 (200032) 15
TW 366346 A 19990811 (200032)
JP 3062475 B2 20000710 (200037) 15
EP 1062950 A2 20001227 (200102) EN
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
MX 193792 A 19991022 (200107)
US 6180639 B1 20010130 (200108)
CA 2059263 C 20010410 (200124) EN
CA 2337748 A1 19911114 (200132) EN
CZ 288499 B6 20010613 (200138)
CN 1326743 A 20011219 (200226)
US 2003004175 A1 20030102 (200305)

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
ZA 9103293	A		ZA 1991-3293	19910430
NO 9200018	A		WO 1991-GB706	19910502
			NO 1992-18	19920102
CS 9101251	A2		CS 1991-1251	19910430
CN 1058214	A		CN 1991-102778	19910430
JP 05501117	W		JP 1991-508513	19910502
			WO 1991-GB706	19910502
HU 64335	T		WO 1991-GB706	19910502
			HU 1992-302	19910502
NZ 238017	A		NZ 1991-238017	19910501
AU 651345	B		AU 1991-77719	19910502
EP 625150	A1		EP 1991-920963	19910502
			WO 1991-GB706	19910502
FI 9504183	A		WO 1991-GB706	19910502
		Div ex	FI 1991-6165	19911230
			FI 1995-4183	19950906
IL 98025	A		IL 1991-98025	19910502
NO 180377	B		WO 1991-GB706	19910502
			NO 1992-18	19920102
CN 1108655	A	Div ex	CN 1991-102778	19910430
			CN 1994-109429	19910430
RO 112616	B1		RO 1991-149033	19910502
			WO 1991-GB706	19910502
SG 46383	A1		SG 1996-4002	19910502
RU 2099338	C1		WO 1991-GB706	19910502
			SU 1991-5010955	19911228
KR 9607532	B1		WO 1991-GB706	19910502
			KR 1991-702025	19911230
JP 11080153	A	Div ex	JP 1991-508513	19910502
			JP 1998-162127	19910502
JP 2927546	B2		JP 1991-508513	19910502
			WO 1991-GB706	19910502
JP 2000128787	A	Div ex	JP 1998-162127	19910502
			JP 1999-300923	19910502
TW 366346	A		TW 1992-102169	19910719
JP 3062475	B2	Div ex	JP 1991-508513	19910502
			JP 1998-162127	19910502
EP 1062950	A2	Div ex	EP 1991-920963	19910502
			EP 2000-118103	19910502
MX 193792	A		MX 1991-25621	19910502
US 6180639	B1		WO 1991-GB706	19910502
			US 1992-835964	19920220
CA 2059263	C		CA 1991-2059263	19910502

		WO 1991-GB706	19910502
CA 2337748	A1 Div ex	CA 1991-2059263	19910502
		CA 1991-2337748	19910502
CZ 288499	B6	CS 1991-1251	19910430
CN 1326743	A Div ex	CN 1994-109429	19910430
		CN 1999-126580	19910430
US 2003004175	A1 Cont of	US 1992-835964	19920220
		US 2001-771701	20010130

FILING DETAILS:

PATENT NO	KIND		PATENT NO
JP 05501117	W	Based on	WO 9117159
HU 64335	T	Based on	WO 9117159
AU 651345	B	Previous Publ.	AU 9177719
		Based on	WO 9117159
EP 625150	A1	Based on	WO 9117159
NO 180377	B	Previous Publ.	NO 9200018
RO 112616	B1	Based on	WO 9117159
JP 2927546	B2	Previous Publ.	JP 05501117
		Based on	WO 9117159
JP 3062475	B2	Previous Publ.	JP 11080153
EP 1062950	A2	Div ex	EP 625150
US 6180639	B1	Based on	WO 9117159
CA 2059263	C	Based on	WO 9117159
CZ 288499	B6	Previous Publ.	CS 9101251
US 2003004175	A1	Cont of	US 6180639

PRIORITY APPLN. INFO: GB 1990-9861 19900502; WO 1991-GB706 19910502

AN 1991-353701 [48] WPIX

AB WO 9117159 A UPAB: 20030416

(-)-Cis-4-amino-1- (2-hydroxymethyl-1,3 -**oxathiolan**-5-yl)-(1H)-pyrimidin-2-one (I) and its derivs. are new. (I) contg. max. 5 wt% of (+)-**enantiomer** (pref. below 1 wt%) is also claimed.

(I) is prepd. by sepn. from a racemic mixt., preferably by chiral HPLC. The stationary phase used is preferably beta-cyclodextrin or cellulose triacetate. Alternatively sepn. is by **enzyme**-mediated **enantioselective** catabolism, preferably using an immobilised **enzyme**. The **enzyme** is preferably cytidine deaminase or a 5-nucleotidase.

USE/ADVANTAGE - For treating viral infections (claimed). (I) is disclosed as being effective against HIV and having fewer side effects than AZT. (I) has the same activity vs. HIV as the (+)-**enantiomer** but considerably lower cytotoxicity. Suitable daily dosage is 1-20 mg/kg. (I) is also useful in treating AIDS related conditions, e.g. AIDS-releated complex, progressive generalised lymphadenopathy, neurological conditions, anti-HIV antibody positive and HIV-positive conditions, Kaposi's sarcoma, thrombocytopenia purpurea and associated opportunistic infections.

Administration can be oral, rectal, nasal, topical, vaginal or parenteral.

The antiviral activity of (I) was determined against C8166 cells infected with HIV-1 strain RF. by measuring inhibition of syncytium formation. The (-)-**enantiomer** gave an IC50 of 0.01 microg/ml compared to 0.05 microg/ml for the (+)-**enantiomer**.

ABEQ JP 05501117 W UPAB: 19930928

(-)-Cis-4-amino-1- (2-hydroxymethyl-1,3 -**oxathiolan** -5-yl)-(1H)-pyrimidin-2-one (I) and its derivs. are new. (I) contg. max 5 wt.% of (+)-**enantiomer** (pref. below 1 wt.%) is also claimed.

(I) is prepd. by sepn. from a racemic mixt., preferably by chiral HPLC. The stationary phase used is preferably beta-cyclodextrin or **enantionselective** catabolism, pref. using an immobilised **enzyme**. The **enzyme** is pref. cytidine deaminase or a 5-nucelotidase.

USE/ADVANTAGE - For treating viral infections (claimed). (I) is disclosed as being effective against HIV and having fewer side effects than AZT. (I) has the same activity vs. HIV as the (+)-**enantiomer** but considerably lower cytotoxicity. Suitable daily dosage is 1-20 mg/kg. (I) is also useful in treating AIDs related conditions, e.g. AIDS-related complex, progressive generalised lymphadenopathy, neurological conditions, anti-HIV antibody positive and HIV-positive conditions, Kaposi's sarcoma, thrombocytopenia purpurea and associated opportunistic infections. Admin. can be oral, rectal, nasal, topical, vaginal or parenteral.

ABEQ ZA 9103293 A UPAB: 19930928

(-)-Cis-4-amino-1- (2-hydroxymethyl-1,3 -**oxathiolan** -5-yl)-(1H)-pyrimidin-2-one (I) and its derivs. are new. (I) contg. max. 5wt.% of (+)-**enantiomer** (pref. below 1 wt.%) is also claimed.

(I) is prepd. by sepn. from a racemic mixt., preferably by chiral HPLC. The stationary phase used is preferably beta-cyclodextrin or cellulose triacetate. Alternatively sepn. is by **enzyme**-mediated **enantioselective** catabolism, preferably using an immobilised **enzyme**. The **enzyme** is preferably cytidine deaminase or a 5-nucleotidase.

USE/ADVANTAGE - For treating viral infections (claimed). (I) is disclosed as being effective against HIV and having fewer side effects than AZT. (I) has the same activity vs. HIV as the (+)-**enantiomer** but considerably lower cytotoxicity. Suitable daily dosage is 1-20 mg/kg. (I) is also useful in treating AIDS related conditions, e.g. AIDS-related complex, progressive generalised lymphadenopathy, neurological conditions, Kaposi's sarcoma, thrombocytopenia purpurea and associated opportunistic infections.

Administration can be oral, rectal, nasal, topical, vaginal or parenteral.

The antiviral activity of (I) was determined against C8166 cells infected with HIV-1 strain RF by measuring inhibition of syncytium formation. The (-)-**enantiomer** gave an IC50 of 0.01 microg/ml compared to 0.05 microg/ml for the (+)-**enantiomer**.

L50 ANSWER 14 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1991-347643 [48] WPIX
DOC. NO. CPI: C1991-149849
TITLE: Ester(s) of (2R,3S)-3-(4-methoxy)phenyl-glycidic acid - prepd. by **enantioselective enzymatic** re-esterification of **enantiomer** mixts. of another ester in presence of alcohol for diltiazem prepn..
DERWENT CLASS: B03 D16
INVENTOR(S): FUGANTI, C; GENTILE, A; GHIROTTO, L; GIORDANO, C; SERVI, S
PATENT ASSIGNEE(S): (ZAMB) ZAMBON SPA; (ZAMB) ZAMBON GROUP SPA
COUNTRY COUNT: 13
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 4115697	A	19911121	(199148)*		
NL 9100854	A	19911216	(199202)		
SE 9101482	A	19911118	(199204)		
GB 2246351	A	19920129	(199205)		

FR 2662178	A	19911122 (199206)	
CA 2042535	A	19911118 (199207)	
GB 2247020	A	19920219 (199208)	
JP 04228095	A	19920818 (199240)	8
ES 2033203	A1	19930301 (199321)	
BE 1005406	A0	19930713 (199332)	18
CH 682670	A5	19931029 (199346)	
GB 2246351	B	19931215 (199350)	
GB 2247020	B	19931215 (199350)	
ES 2033203	B1	19931216 (199403)	
AT 9100995	A	19950515 (199525)	
IT 1249777	B	19950318 (199536)	
AT 400446	B	19951115 (199550)	
US 5571704	A	19961105 (199650)	5
CA 2042535	C	19980616 (199835)	
SE 509297	C2	19990111 (199908)	
JP 2000139492	A	20000523 (200033)	7
JP 3060187	B2	20000710 (200037)	7
DE 4115697	C2	20000907 (200043)	
JP 3223317	B2	20011029 (200171)	6
US 6346632	B1	20020212 (200219)	
NL 194616	B	20020501 (200237)	

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
DE 4115697	A		DE 1991-4115697	19910514
NL 9100854	A		NL 1991-854	19910516
GB 2246351	A		GB 1991-110610	19910516
FR 2662178	A		FR 1991-5866	19910515
GB 2247020	A		GB 1991-20710	19910516
JP 04228095	A		JP 1991-210541	19910516
ES 2033203	A1		ES 1991-1193	19910516
BE 1005406	A0		BE 1991-458	19910516
CH 682670	A5		CH 1991-1329	19910503
GB 2246351	B		GB 1991-10610	19910516
GB 2247020	B	Derived from	GB 1991-10610	19910516
			GB 1991-20710	19910516
ES 2033203	B1		ES 1991-1193	19910516
AT 9100995	A		AT 1991-995	19910514
IT 1249777	B		IT 1990-20348	19900517
AT 400446	B		AT 1991-995	19910514
US 5571704	A	Cont of	US 1991-698853	19910513
		Div ex	US 1994-197544	19940217
			US 1995-404284	19950314
CA 2042535	C		CA 1991-2042535	19910514
SE 509297	C2		SE 1991-1482	19910516
JP 2000139492	A	Div ex	JP 1991-210541	19910516
			JP 1999-352154	19910516
JP 3060187	B2		JP 1991-210541	19910516
DE 4115697	C2		DE 1991-4115697	19910514
JP 3223317	B2	Div ex	JP 1991-210541	19910516
			JP 1999-352154	19910516
US 6346632	B1	Cont of	US 1991-698853	19910513
		Cont of	US 1994-197544	19940217
			US 1995-487584	19950607
NL 194616	B		NL 1991-854	19910516

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AT 400446	B	Previous Publ.	AT 9100995
JP 3060187	B2	Previous Publ.	JP 04228095
JP 3223317	B2	Previous Publ.	JP 2000139492

PRIORITY APPLN. INFO: IT 1990-20348 19900517
AN 1991-347643 [48] WPIX
AB DE 4115697 A UPAB: 19930928
Prepn. of esters of (2R,3S)-3-(4-methoxyphenyl) glycidic acid of formula (I) comprises re-esterifying entiomer mixt. of (m)ethyl ester of (I), (i.e. (I; R = Me or Et) and their (2R,3S)-**enantiomers** (ent-(I)) **enantioselectively** and **enzymatically** using an alcohol which is different from that esterifying (I) and ent-(I)) and is of opt. branched 2-8C aliphatic- or 5-6C cycloaliphatic-alcohol or 2,2-dimethyl-1,3-**dioxolan**-4-methanol. The reaction is opt. carried out in the presence of pref. solvent (mixt.). The re-esterified ester (I) is sepd. from the unreacted ester. R = opt. branched 1-8C alkyl, 5-6C cycloalkyl or 2,2-dimethyl-1,3-**dioxolan** -4-methyl.
USE/ADVANTAGE - Intermediates in the synthesis of (+)-(2S,3S)-3-etharoyloxy -5-(2-(dimethyl amino)-ethyl)-2,3-dihydro -2-(4-methoxyphenyl) -1,5-benzothiazepin -4-(5H)-one (Diltiazem), a pharmaceutical with coronary vasodilatory properties. Pref. economically to separate the isomers in an early stage in the prodn. of Diltiazem i.e. to separate the (I)-isomers. The process gives (I) in good yields with high **enantiomer** purity, and also enables the undesired **enantiomer** to be recycled, racemising it, or reversing its configuration. The **enzyme** retains its **enzymatic** activity and can be used several times.
0/0
ABEQ BE 1005406 A UPAB: 19931118
Prepn. of esters of (2R,3S)-3-(4-methoxyphenyl) glycidic acid of formula (I) comprises re-esterifying **enantiomer** mixt. of (m)ethyl ester of (I), (i.e. (I; R = Me or Et) and their (2R,3S)-**enantiomers** (ent-(I)) **enantioselectively** and **enzymatically** using an alcohol which is different from that esterifying (I) and ent-(I)) and is of opt. branched 2-8C aliphatic- or 5-6C cycloaliphatic-alcohol or 2,2-dimethyl-1,3-**dioxolan**-4-methanol. The reaction is opt. carried out in the presence of pref. solvent (mixt.). The re-esterified ester (I) is sepd. from the unreacted ester. R = opt. branched 1-8C alkyl, 5-6C cycloalkyl or 2,2-dimethyl-1,3-**dioxolan** -4-methyl.
USE/ADVANTAGE - Intermediates in the synthesis of (+)-(2S,3S)-3-acetyloxy -5-(2-(dimethyl amino)-ethyl)-2,3-dihydro -2-(4-methoxyphenyl) -1,5-benzothiazepine -4-(5H)-one (Diltiazem), a pharmaceutical with coronary vasodilatory properties. Pref. economically to separate the isomers in an early stage in the prodn. of Diltiazem i.e. to separate the (I)-isomers. The process gives (I) in good yields with high **enantiomer** purity, and also enables the undesired **enantiomer** to be recycled, racemising it, or reversing its configuration. The **enzyme** retains its **enzymatic** activity and can be used several times. @(6pp Dwg.No.0/0)@
Dwg.0/0
ABEQ GB 2246351 B UPAB: 19940203
A process for the preparation of an ester of (2R,3S)-3-(4-methoxyphenyl)-glycidic acid, the ester having the general formula I wherein R represents a linear or branched C1-C8 alkyl group, a C5-C6 cycloalkyl group or a 2,2-dimethyl-1,3-**dioxolane**-4-methyl group; the process comprising subjecting an **enantiomeric** mixture of (2R,3S) and (2S,3R)-3-(4-methoxyphenyl)-glycidic acid methyl ester or ethyl ester to

enantioselective enzymatic transesterification with an alcohol R'OH wherein R' has any of the meanings given above for R except a methyl group and is different from R and separating the transesterified ester from the untransesterified ester.
Dwg.0/0

ABEQ GB 2247020 B UPAB: 19940203
A process for increasing the **enantiomeric** purity of a non-racemic ester of 3-(4-methoxyphenyl)-glycidic acid in which the **enantiomeric** ratio (2R,3S):(2S,3R) is at least 80:20, the process comprising crystallising the ester from a solvent.
Dwg.0/0

ABEQ US 5571704 A UPAB: 19961211
A process for the preparation of esters of (2R,3S)-3-(4-methoxyphenyl)-glycidic acid of formula (I)
wherein R is a linear or branched C1-C8 alkyl group; a C5-C6 cycloalkyl group or a 2,2-dimethyl-1,3-**dioxolane**-4-methyl group;
which consists of:
subjecting an **enantiomeric** mixture of (2R,3S)-3-(4-methoxyphenyl)-glycidic acid methyl ester or ethyl ester (I, R=CH3, C2H5) and its (2S,3R)-**enantiomer** (ent-I) to an **enantioselective enzymatic** transesterification, in the presence of a **lipase** of animal or microbial origin as the **enzyme** and in the presence of an alcohol which is different from the alcohol esterifying compound I and ent-I and which is selected from the group consisting of a linear or branched C2-C8 aliphatic alcohol, a C5-C6 cycloaliphatic alcohol and 2,2-dimethyl-1,3-**dioxolane** -4-methanol, optionally in the presence of a suitable solvent or mixture of solvents; and
separating the transesterified ester from the untransesterified ester.
Dwg.0/0

L50 ANSWER 15 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1991-045737 [07] WPIX
DOC. NO. CPI: C1991-019353
TITLE: Prepn. of S-**enantiomer** of 1,3-dioxalane-4-methanol and derivs. - by subjecting **enantiomeric** mixt. to PQQ-dependent alcohol dehydrogenase.
DERWENT CLASS: B02 C02 D16
INVENTOR(S): DUINE, A J; GEERLOF, A; GROEN, B W; DUINE, J A; GROEN, B
PATENT ASSIGNEE(S): (STAM) STAMICARBON BV; (STAM) DSM NV
COUNTRY COUNT: 14
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 412585	A	19910213	(199107)*		
R: AT BE CH DE ES FR GB GR IT LI NL SE					
NL 8902035	A	19910301	(199113)		
DD 297161	A5	19920102	(199222)		
US 5182209	A	19930126	(199307)		7

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 412585	A	EP 1990-201651	19900625
NL 8902035	A	NL 1989-902035	19890809
DD 297161	A5	DD 1990-343334	19900808
US 5182209	A	US 1990-541910	19900622

PRIORITY APPLN. INFO: NL 1989-2035 19890809
AN 1991-045737 [07] WPIX
AB EP 412585 A UPAB: 19931129
A process for the **enantioselective** conversion of an **enantiomer** mixt. of 2R1, 2R2 - 1,3-**dioxolane**-4-methanol of formula (I) is claimed which comprises subjecting the **enantiomeric** mixt. to the action of an **enantioselective enzyme**, characterised in that a 2R1, 2R2-1,3-**dioxolane** -4-methanol enriched in S-**enantiomer** is prepd. by applying a suitable PQQ-dependent alcohol dehydrogenase (ADH) as **enantioselective enzyme**.

In (I) (R1, R2 = H, alkyl or aryl or R1 and R2 together with the C atom to which they are attached represent an opt. substd. carbocyclic ring).

Pref. the PQQ-dependent ADH originates from Pseudomonas testosteroni ATCC 15666, 15667, NCIB, 8893, NCIB 8955, NCIB 10808 or Gluconobacter suboxydans ATCC 621.

USE/ADVANTAGE - The PQQ-dependent ADH oxidises the R-**enantiomer** of (I) at a more rapid rate to form the S-**enantiomer** of the corresponding 2R1, 2R2-1,3-dioxolone -4-carboxylic acid, as a result of which also a reaction prod. enriched in S-2R1, 2R2-1,3-dioxolone-4-methanol is obtd. An **enantiomer** excess of more than 95% can be obtd. at a conversion of 50-55%. In a prefd. process an **enantiomer** excess of S-2,2-dimethyl-1,3-dioxolone-4-methanol (Ia) of at least 95% can be obtd. (Ia) can be used for the prepn. of pharmaceuticals, crop protection and/or agricultural pest control agents. It can also be used to prepare beta-receptor blocking agents and sn-glyceryl-phosphorylcholine. @(9pp DWg.No.0/1)@
ABEQ US 5182209 A UPAB: 19930928
Enantioselective conversion of an **enantiomeric** mixt. of 2R1, 2R2-1,3-**dioxolane**-4- methanol (I) comprises combining the **enantioselective enzyme** PQQ-dependent alcoholdehydrogenase with the mixt. where (I) is of formula (I) to produce mixt. of (I) enriched in 5-(I). In the formula R1 and R2 are each H, opt. branched alkyl or aryl or CR1R2 forms an opt. substd. carbocyclic ring.

USE/ADVANTAGE - S-(I) is starting material for pharmaceuticals crop protection and/or agricultural pest control agents.
0/3

L50 ANSWER 16 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1990-297975 [40] WPIX
DOC. NO. CPI: C1990-128771
TITLE: Optical **resolution** of 1,3-**dioxolane** -4-carboxylate ester(s) - by **enantio**-selective hydrolysis with protease.
DERWENT CLASS: B03 D16 E13
INVENTOR(S): BOHME, M; DROESCHER, P; HAFNER, B; KNOLL, A; SCHICK, H G; SCHONECKER, R; SCHROTTER, E; SZYMANOWSK, M
PATENT ASSIGNEE(S): (BIOT-N) VE FORSCH BIOTECHNO
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DD 277698	A	19900411	(199040)*		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DD 277698	A	DD 1988-322708	19881206

PRIORITY APPLN. INFO: DD 1988-322708 19881206
AN 1990-297975 [40] WPIX
AB DD 277698 A UPAB: 19930928
Prodn. of (5)-1,3-**dioxolane**-4-carboxylate esters of formula (I) is effected by treating the racemic cpd. with a proteolytic **enzyme** in the presence of a base, whereby the (R) isomer is selectively hydrolysed, and sepg. (I) from the (R) acid: In (I) R1 = alkyl, aryl or substd. benzul; R2 = CH2, CH2CH2 (sic) or CR3R4; R3 and R4 = H, alkyl or aryl, or R3+R4 = (CH2)4 or (CH2)5.
USE/ADVANTAGE - (I) are useful as intermediates for natural prods., pharmaceuticals (e.g. steroids) and cosmetic prods. Process gives high yields (e.g. 44-83%) of (I) with high optical purity (ee = 34-87%).
0/0

L50 ANSWER 17 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1990-291754 [39] WPIX
DOC. NO. CPI: C1990-125883
TITLE: New 1,3-**dioxolane**-4-methanol derivs. prodn. - by selectively hydrolysing racemic ester using carbonyl **esterase**.
DERWENT CLASS: B03 D16 E13
INVENTOR(S): BARNER, R; HUEBSCHER, J; WIRZ, B; HUBSCHER, J
PATENT ASSIGNEE(S): (HOFF) HOFFMANN-LA ROCHE AG; (HOFF) HOFFMANN LA ROCHE & CO AG F; (HOFF) HOFFMANN LA ROCHE INC
COUNTRY COUNT: 12
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 388778	A	19900926	(199039)*		19
R: AT BE CH DE FR GB IT LI NL					
JP 03215482	A	19910920	(199144)		
EP 388778	A3	19920102	(199320)		19
US 5232852	A	19930803	(199332)		
US 5283346	A	19940201	(199406)#		8
EP 388778	B1	19960110	(199607)	GE	23
R: AT BE CH DE DK FR GB IT LI NL					
DE 59010041	G	19960222	(199613)		
JP 3012273	B2	20000221	(200014)		16

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
EP 388778	A		EP 1990-104859	19900315
JP 03215482	A		JP 1990-67386	19900319
EP 388778	A3		EP 1990-104859	19900315
US 5232852	A		US 1990-492166	19900313
US 5283346	A	Div ex	US 1990-492166	19900313
			US 1992-990231	19921214
EP 388778	B1		EP 1990-104859	19900315
DE 59010041	G		DE 1990-510041	19900315
			EP 1990-104859	19900315
JP 3012273	B2		JP 1990-67386	19900319

FILING DETAILS:

PATENT NO	KIND		PATENT NO
US 5283346	A	Div ex	US 5232852
DE 59010041	G	Based on	EP 388778
JP 3012273	B2	Previous Publ.	JP 03215482

PRIORITY APPLN. INFO: CH 1989-1093 19890323
AN 1990-291754 [39] WPIX
AB EP 388778 A UPAB: 19940303
(A) 1, 3-**Dioxolane**-4-methanol derivs. of formula (I) are new: Where R1 and R2=Me or Et, or R1+R2=(CH2)5; R3=H, 2-9C alkanoyl, alkylsulphonyl or arylsulphonyl; provided that (a) R3 is not H when R1=R2=Me, and (b) the cpds. are chiral when R1+R2=(CH2)5 and R3=H (B) Prodn. of optically active 1, 3-**dioxolane**-4-methanol derivs. of formula (Ia') and (Ib') is effected by selectively hydroglysing a racemic ester of formula (Ia) using a carboxyl **esterase**, triacylglycerol **lipase**, cholesterol **esterase** or diacylglycerol **lipase enzyme**: (R3'=2-9C alkanoyl). (C) Prodn. of d-alpha-tocopherol (II) is effected by: (a) converting (Ib') to the corresp. (R)-alkylsulphonate or (R)-arylsulphonate, removing the protecting gp. CR1R2 and converting the resulting (R)-diol to (II) in known manner; or (b) hydrolysing (Ia') to obtain the (R)-alcohol (Ib''), converting this to the corresp. (A)-alkylsulphonate or (S)-arylsulphonate, removing the protecting gp. CR1R2, and converting the resulting (S)-diol to (II) in known manner.
USE - (II) is an active form of vitamin E. @(19pp Dwg.No.0/0)@
0/0@
ABEQ EP 388778 A UPAB: 19930928
(A) 1, 3-**Dioxolane**-4-methanol derivs. of formula (I) are new: Where R1 and R2=Me or Et, or R1+R2=(CH2)5; R3=H, 2-9C alkanoyl, alkylsulphonyl or arylsulphonyl; provided that (a) R3 is not H when R1=R2=Me, and (b) the cpds. are chiral when R1+R2=(CH2)5 and R3=H (B) Prodn. of optically active 1, 3-**dioxolane**-4-methanol derivs. of formula (Ia') and (Ib') is effected by selectively hydrolysing a racemic ester of formula (Ia) using a carboxyl **esterase**, triacylglycerol **lipase**, cholesterol **esterase** or diacylglycerol **lipase enzyme**: (R3'=2-9C alkanoyl). (C) Prodn. of d-alpha-tocopherol (II) is effected by: (a) converting (Ib') to the corresp. (R)-alkylsulphonate or (R)-arylsulphonate, removing the protecting gp. CR1R2 and converting the resulting (R)-diol to (II) in known manner; or (b) hydrolysing (Ia') to obtain the (R)-alcohol (Ib"), converting this to the corresp. (A)-alkylsulphonate or (S)-arylsulphonate, removing the protecting gp. CR1R2, and converting the resulting (S)-diol to (II) in known manner.
USE - (II) is an active form of vitamin E.
0/0
ABEQ US 5232852 A UPAB: 19931118
Prodn. of s-**enantiomer** of an alcohol of formula (I) comprises **enzymatic** hydrolysis of the racemic cpd. using **lipase** -P-30, **lipase** SAM, **lipase** PM, **lipase** LMM, **lipase** 2RD, **lipase** D, **lipase** LRA, **lipase** CE, **lipase** FAP or **lipase** MAP, and recovering the s-**enantiomer** in (I) R, and R2 are independently Me or Et or R1+R2 form pentamethylene.
USE/ADVANTAGE - (I) are intermediates for vitamin E esp. in its optically active form d-alpha-tocopherol. The **lipase** is pref. of microbial origin from Pseudomonas fluorescens, Mucor mehei, Rhizopus delemar, Rhizopus arrhizus, etc. (17pp Dwg.No.0/0)

ABEQ US 5283346 A UPAB: 19940322
Diox lanes of formula (Ia) and (Ic), racemates and **enantiomers**, are new. In the formulae, R1 and R2 are independently Me or Et or together form pentamethylene; R3' is 2-9C alkanoyl;p R3'' is alkane- or aryl-sulphonyl.
Specifically claimed cpds. include ((R,S)-2-methyl-2,4 -dioxaspiro-(4,5)-dec-2-yl) methyl butyrate. **Enantiomers** are obtd. by **enzymatic** hydrolysis of the corresp. (R,S) alkanoic acid ester.
USE/ADVANTAGE - Intermediates to Vitamin E.
Dwg.0/0
ABEQ EP 388778 B UPAB: 19960222
A process for the manufacture of a compound of the general formula (I) or (II), wherein R1 and R2 each independently signify methyl or ethyl or together signify pentamethylene, characterised by hydrolysing a racemic alkanoic acid ester of the general formula (III), wherein R1 and R2 have the significances given above and R3 signifies C2-9-alkanoyl, to the compound of general formula (I) using an **enzyme** of the sub-class carboxyl **esterases** (EC 3.1.1.1), triacyglycerol **lipases** (EC 3.1.1.3), cholesterol **esterases** (EC 3.1.1.13) or diacylglycerol **lipases** (EC 3.1.1.34) or hydrolysing the (S)-alkanoic acid ester of the general formula (IV), wherein R1, R2 and R3' have the significances given above, which does not react when the **enzymatic** hydrolysis is carried out, to the corresponding (R)-alcohol of the general formula (V), wherein R1 and R2 have the significances given above.
Dwg.0/0

L50 ANSWER 18 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1990-201019 [26] WPIX
DOC. NO. CPI: C1990-087056
TITLE: Optically active glycerol ketal ester derivs. prepn. - by **resolution** of racemic ester with **enzyme** from Streptomyces parvulus or Micrococcus luteus.
DERWENT CLASS: B03 D16
INVENTOR(S): SIH, C J
PATENT ASSIGNEE(S): (WISC) WISCONSIN ALUMNI RES FOUND
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 4931399	A	19900605	(199026)*		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 4931399	A	US 1985-773493	19850909

PRIORITY APPLN. INFO: US 1985-773493 19850909
AN 1990-201019 [26] WPIX
AB US 4931399 A UPAB: 19930928
Method for **resolving** racemic 2,3-O-substd. glycerol esters comprises treating the esters with **enzymes** produced by Streptomyces parvulus ATCC 19796 or Micrococcus luteus ATCC 9341 and recovering optically active 2,3-O-substd. glycerol and optically active 2,3-O-substd. glycerol esters.
The esters are treated with **enzymes** produced during

cultivation in aq. nutrient medium under submerged aerobic conditions, pref. at 10-35 deg C for 12 hrs - 10 days, pref. using immobilised cells; or by exposure to the isolated **enzymes**, pref. immobilised.
Prefd. esters are 2-4C acyl ester of 2,2-dimethyl-or 2,2-pentamehtylene-1,3-**dioxolane**-4-methanol.

USE/ADVANTAGE - The chiral prods. are useful as intermediates in synthesis of chiral beta-adrenergic blocking agents for treatment of heart disease, hypertension, glaucoma, etc.; of phospholipids; of platelet activating factor; and of chiral mono-, di- and tri-glycerides.
0/0

L50 ANSWER 19 OF 19 WPIX (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1988-088330 [13] WPIX
DOC. NO. CPI: C1988-039619
TITLE: Optical method of sepg. pentagonal cyclic alcohol - using glucose-transferase and 6-substd. sucrose deriv. to prepare separable diastereomer.
DERWENT CLASS: B04 D16
PATENT ASSIGNEE(S): (MITD) MITSUI SUGAR CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 63039590	A	19880220	(198813)*		6
JP 2597995	B2	19970409	(199719)		5

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 63039590	A	JP 1986-183376	19860806
JP 2597995	B2	JP 1986-183376	19860806

FILING DETAILS:

PATENT NO	KIND		PATENT NO
JP 2597995	B2	Previous Publ.	JP 63039590

PRIORITY APPLN. INFO: JP 1986-183376 19860806
AN 1988-088330 [13] WPIX
AB JP 63039590 A UPAB: 19930923
The method relates to the optical dividing method for pentagonal cyclic alcohol and is characterized by (a) using glucosetransferrase, 6'-substd. sucrose deriv. as glucosyl donator and pentagonal cyclic alcohol as glucosyl acceptor and (b) hydrolysing the glucoside bond of formed glucosylated cpd. either as it is or in the case that the glucosylation lacks the selectivity for optical **enantiomer**, after sepg. diastereomer from reaction product.

As pentagonal cyclic alcohol, pentagonal cyclic **dioxolan**, pentagonal cyclic tetrahydrofuran and pentagonal cyclopentane can be used favourably. As hydrolysing **enzyme** alpha-glucosidase can be used and alpha-glucosidase and sucrose glucosyltransferrase may be used in the form of fixed **enzyme**.

USE/ADVANTAGE - By the method, pentagonal cyclic alcohol can be optical divided and thus divided optical active pentagonal cyclic alcohol can be used widely as the material for synthesizing various physiologically active substances such as prostaglandin, glycero-glycolipid, pheromone, etc.

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